

YAM

English manual © Eric BERTREM, 1998-1999
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FOREWORD :

Yam was designed by Nico Palermo IV3NWV and is assembled in France. Drawings, PCB and drivers belong to their authors. Any commercial use is strictly forbidden without prior written permission. Please note that all programs contained on the 3 1/2 disk are freely distributed.

YAM is the cheapest and easiest solution for 1200 and 9600 Baud packet-radio. It is connected to a COM port on one side (16550 UART is mandatory !!), and to your transceiver on the other side, the later being previously modified for 9600 Baud operation if needed.

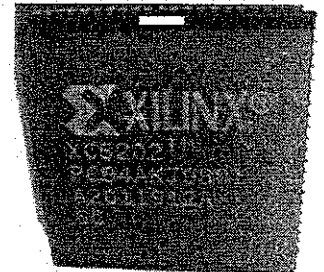
On the software side, YAM can use multiple drivers :

- IFX_YAM : an enhanced IFPCX, for Ms-Dos
- IFPCX 2.71 : the famous IFPCX driver, working with any hardware or so
- YAMSER : a PC/FlexNet 3.3g driver for Dos or Win95
- Win95 : SV2AGW software working under Win95
- JNOS : TCP/IP
- Linux driver : yamdrv-0_5_tar

ASSEMBLY :

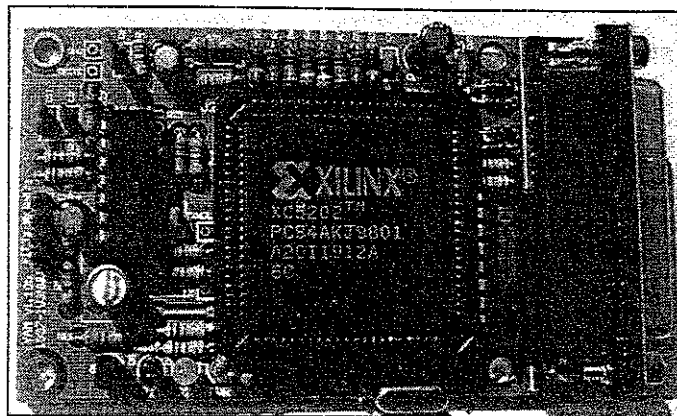
Assembling a YAM is easy. However, you need to pay attention to some details :

- Use a tiny soldering iron and a good solder. At the end of the assembly, you can remove the remaining solder spots by using a spray (ask your electronic dealer, they all have this).
- R2 to R9 resistors are 1 % resistors : don't mix them up with other resistors and don't hesitate to check their value with a controller.
- Be careful when mounting the three LEDs : D5 (TX) and D6 (RX) must be soldered the same way, D7 (PWR) the opposite way. The smallest leg is the (-) side.
- Don't invert ICs. The XC5202 (the big 84-pin-IC) and its holder have one single way to be put. You can invert the IC, not the holder : look for the small "point" on the IC (see the white part on the drawing) and let it face the drawing (an arrow) on the holder.
- To insert the XC 5202, place it above its holder and slightly press its body, pressing the four corners at the same time.



Connect YAM to your PC COM port, directly or by using a 25 pin DB25 cable, connected as follow :

1	-	1
2	-	2
3	-	3
	etc	
25	-	25



View of the modem assembled

A tiny 4-pin connector (left side of the picture) is used to connect your transceiver : use the female plug provided with your Yam to build a shielded cable with all signals (Tx AF, Rx AF, PTI, and GND).

SOFTWARE SETUP :

Here is the content of your 3"1/2 disk :

YAMSER15.ZIP	: YAM's PC/FlexNet drivers (NEW !)
YAM.COM	: JNOS driver
FL.BAT	: examples for PC/FlexNet
YAMPKI.BAT	: exemple with JNOS
YAMINI1.EXE	: init software
YAM111.MCS	: init file, version 1.11
YAM1K2.MCS	: init file, 1200 Baud AFSK
TFX_COM1.BAI	: example for TFX_YAM on COM1
TFX_COM2.BAI	: example for TFX_YAM on COM2
TFX_YAM.COM	: hostmode (TF 2.7) or TFPCX-like driver
YAMDRV-0_6_IAR	: Linux driver V 0.6
YAMDRV-0_7_IAR	: Linux driver V 0.7
PKZ204G.EXE	: PKZIP & PKUNZIP, to extract ZIP files
LHA213.EXE	: LHarc v2.13, to extract LZH files

The PCFLEX sub-directory contains the following files :

PCF.LZH	: PC/FlexNet Dos kernel
FLEX95.LZH	: Windows 95 kernel, to be used along with PCF.LZH
FLEX95IP.LZH	: TCP/IP router under Windows 95
KISS.LZH	: KISS driver
BCT160U.LZH	: BayCom's PC/FlexNet terminal software
SER12.LZH	: 1200 Baud BayCom driver (for COM ports)
TFEMU.LZH	: hostmode emulator
FNODE33G.LZH	: digipeater function for PC/FlexNet 3.3g

First, remember to always initialize YAM before launching any driver : use YAMINI1.EXE and its initialisation file YAMxxx.MCS (xxx being the version number) followed by your COMport number (1 to 4 and no weird IRQ) :

```
YAMINI1 YAM111 MCS 2 to initialize YAM on COM2, 9600 Bauds
YAMINI1 YAM111 MCS 1 to initialize YAM on COM1 9600 Bauds
```

```
YAMINI1 YAM1K2 MCS 1 to initialize YAM on COM1, 1200 Bauds
```

If you intend to use non-standard address on your COM port, add « pADDRESS » when starting YAMINI1. Eg : YAMINI1 YAM111 MCS 3p320

During the init sequence, the PWR led should blink, indicating that the YAMxxx.MCS file is being sent to the CPU. If the init fails, a message is displayed on the screen.

YAM at 1200 Baud :

The new YAMSER 1.5 has been released : it is now possible to use PC/FlexNet and any other drivers at 1k2 AFSK. Here is an example :

```
YAMINI1 YAM1K2 MCS 1  init. YAM on COM1
TFPCX -PYAM1          load TFPCX on COM1
GP286                 start Graphic Packet
```

Easy isn't it ? Simple initialize YAM with YAM1K2.MCS instead of YAM111.MCS and that's it !
With PC/FlexNet, use the MODE command to set the speed (and read the manual included in YAMSER15.LZH)

PC/FlexNet (3.3g version minimum) :

```
YAMINI1 YAM111 MCS 1  YAM initialization on COM1, 9k6
LH FLEXNET             load FlexNet
LH YAMSER /C1         load YAM driver on COM1
FLEX                  activate FlexNet
FSET TXDELAY 0 20     txdelay 20
FSET DIGICALL F6XXX   callsign setup
FSET MODE 0 9600     speed setup
BCT F6XXX             load PC/FlexNet terminal software
```

This BAI file works under Dos or Win95. In this last case, BCT.EXE must be started within a DOS windows, not in AUTOEXEC.BAT. A more comprehensive example is given on Annex 1.

TFX_YAM :

This setup only works under Dos, not under Win95. Please note that TFX_YAM only accepts COM 1 and COM 2.

```
YAMINI1 YAM111 MCS 1  YAM initialization on COM1
TFX_YAM -C :1         load TFX_YAM on COM1
CD\GP                 load Graphic Packet for example, or any other hostmode software.
GP286
```

JNOS :

Start YAM COM to know more about the syntax or use the following BAT file for COM 1:

```
yam -u
yaminit yam111.mcs 1
yam 0x60 ax25 3 0x2f8 19200
```

and this file for COM2 :

```
yam -u
yaminit yam111.mcs 2
yam 0x60 ax25 4 0x3f8 19200
```

ANNEX 1 : PC/FlexNet under Win95

PC/FlexNet can control multiple hardware interfaces at the same time, YAM included. We could compare it to an enhanced IFPCX.

PC/FlexNet must be started in your AUTOEXEC BAT and will remain active and available for DOS sessions, or directly for programs which can directly interface with it. The following example shows how to use a BayCom 1200 Baud modem on COM2. Don't forget to read the PC/FlexNet Windows 95 documentation to install all drivers without making troubles.

The setup is the same for YAM, but the driver is different (and don't forget the YAMINIT !).

First, copy all drivers to CAPCF33G, and insert the following lines in your AUTOEXEC BAT:

```
PATH CAPCF33G          * Win95 must be able to find PC/FlexNet
SET FLEXNET = CAPCF33G

LH FLEXNET             * load PC/FlexNet
LH YAMSER /C2         * load YAM driver on COM2 (YAM111 MCS is the default file)
LH FLEX                * activate PC/FlexNet
FSET MODE 0 9600      * speed setup (9600 Baud)
FSET TXD 0 18         * txdelay setup
FSET DIGICALL F6XXX   * callsign setup
```

Restart Windows 95. A PC/FlexNet windows should appear. Now, start a dos session. Two choices :

- Start BCI.EXE, a BayCom 1200-like software
- Start a hostmode software under Dos, like TOP, SP, ISIHOSI, etc.

This last case being widely used, we'll tell you more about the setup of TOP. Above all, set TOP to work with IFPCX (start TOPSEI EXE to change the configuration file).

The BAT file could then be like :

```
LH IFEMU /DM          * load the hostmode emulator
TOP                   * load TOP
```

Here we are, you now have a DOS packet-radio program under Windows 95 !

ANNEX 2 : 9600 Baud-ready transceivers

We'll talk here about a very important topic : transceivers which have a 9600 Baud output, like FT8000, FT8100, IM733, IMV7E, etc, no matter of the brand.

On some transceivers, the 9600 Baud Rx AF is not good enough for Yam to decode all frames received. This is a problem too with PICPAR, PAR96, and also some TNCs. The solution is easy : get the Rx AF directly from the FM receiver output (= discriminator output), soldering a tiny shielded wire. If you are not sure to know the right place, please ask your local hamradio dealer before making a big mistake !

ANNEX 3 : modifications

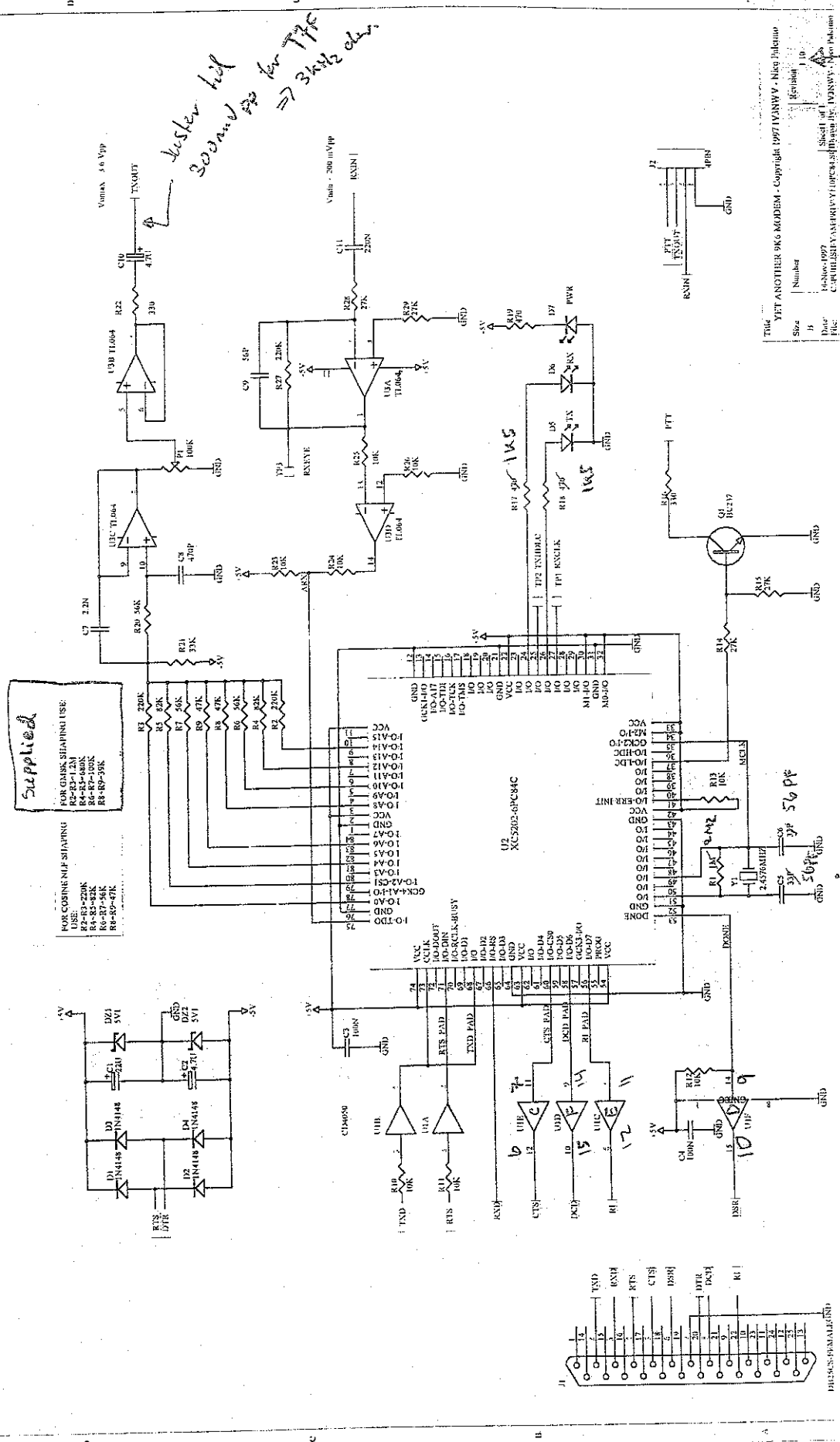
In some cases, it is needed to modify YAM since the XC5202 exists in several versions, some being quite different from the others : clock doesn't start or power current is too high. Therefore, we suggest you ALWAYS change the following components with the indicated values :

- R1 : 2,2 MOhm
- C5 et C6 : 56 pF
- R17 : 1,5 KOhm
- R18 : 1,5 KOhm

COMPONENTS :

Ref.	Quantity	Value
R1	1	Resistor 1 M Ω <i>Mod: 2M2</i>
R2, R3	2	Resistor 1,2 M Ω , 1%
R4, R5	2	Resistor 680 k Ω , 1%
R6, R7	2	Resistor 100 k Ω , 1%
R8, R9	2	Resistor 39 k Ω , 1%
R10, R11, R12, R13, R23, R24, R25, R26	8	Resistor 10 k Ω
R14, R15, R28, R29	4	Resistor 27 k Ω
R16, R22	2	Resistor 330 Ω
R17, R18, R19	3	Resistor 470 Ω <i>Mod: R17/R18 1k5</i>
R20	1	Resistor 56 k Ω
R21	1	Resistor 33 k Ω
R27	1	Resistor 220 k Ω
P1	1	Trimmer 100 k Ω
C1	1	Capacitor 22 uF, 16 V
C2, C10	2	Capacitor 4,7 uF, 16 V
C3, C4	2	Ceramic capacitor 100 nF, spacing 2,54
C5, C6	2	Ceramic capacitor 33 or 27 pF, spacing 2,54 <i>Mod: 56 pF</i>
C7	1	Ceramic capacitor 2,2 nF, spacing 2,54
C8	1	Ceramic capacitor 470 pF, spacing 2,54
C9	1	Ceramic capacitor 56 pF, spacing 2,54
C11	1	Ceramic capacitor 220 nF, spacing 2,54
D1, D2, D3, D4	4	1N4148
D5	1	LED 2 mm red
D6	1	LED 2 mm green
D7	1	LED 2 mm yellow
DZ1, DZ2	2	Zener 5,1 V, 1/4 Watt
Q1	1	Transistor, BC237, BC547, or BC548
Y1	1	2.4576 MHz crystal
U1	1	CD4050
U2	1	XC5202-6PC84C
U3	1	TL064
J1	1	DB25 female plug
J2	1	Male & female connector, 4 pins (AF signals)
	1	IC holder, 14 pins
	1	IC holder, 16 pins
	1	PLCC IC holder, 84 pins
	1	YAM PCB
	1	Drivers disk

AA 022 4.38V } mod.
 D71 4.58V } orig. 4.59V



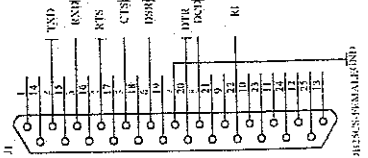
Supplied

FOR COMBINE NLF SHIFTING
 R2-R3-220K
 R4-R5-56K
 R6-R7-56K
 R8-R9-56K

kusker hel
 30000 baud for 770
 => 3kHz else.

TUG YET ANOTHER 9600 MODEM - Copyright 1997 IVANV - Nick Jalciano
 Sheet 1 of 1
 Date: 16-Nov-1997
 File: C:\PUBLIS\YAN\9600V1\9600C84C.SCH

1.10
 1.10b



PHONES: 0-9 A-M L-ND