SDR TRX STANDALONE TRANSCEIVER WITH DSP PIC-A-STAR SOFTWARE

Transceiver Prototype (yet unnamed) made by the team of Velletri
I0VNR IK0OZG IK0GMM

FEATURES AND FOUND DATA DURING THE PRE-TEST

RECEIVING:

First IF filter 9MHz KVG

Second IF 15Khz

Maximum admissible signal +15 dBm (S9 +84 dB)

Audio control within + / - 1 dB 95 dB dynamic range

RX filters (DSP) from 100Hz to 3600Hz scalable

Denoiser Typically 20 dB of noise reduction on a white noise signal S8 and bandwidth of the signal without distortion to S4

Autonotch Typically 50 dB reduction of the unwanted signal on one band from 200Hz to Within 20ms 3200Hz.

Manual notch, same values as above.

Full break - in

MDS -120 dBm with no amp
    -135 dBm with amp

IMD3 without amp (tone 5Khz) -15 dBm
      with amp (tone 5Khz) -30 dBm

IP3 without amp. (tone 5Khz) + 37dBm
IP3 with amp.   (tone 5Khz) +22 dBm

TRANSMISSION:

P.out: infinitely adjustable Max 20W (CW)

Tones IMD3 2Khz> 40 dBc

TX filters (DSP) scalable from 1.8 kHz to 3.8 kHz

Electronic keyer (2 Jambic mode)

Reading signals "S" DSP with accuracy + / - 1dB

The entire RX and TX, the second IF to the BF, is managed by the DSP ADSP 218xN + interface

DSPx and software PIC-A-STAR rev.2.6a

Generation Units with DDS and AD9951 clock 500MHz, DSP management, controller, and DDS

transceiver with a single 18F452 PIC microcontroller and software by Ik0gmm.

20 memories available to the operator to store frequency, mode, VFO.
SPLIT
RIT
Dual VFO
Menu DSP (20 voices setting)
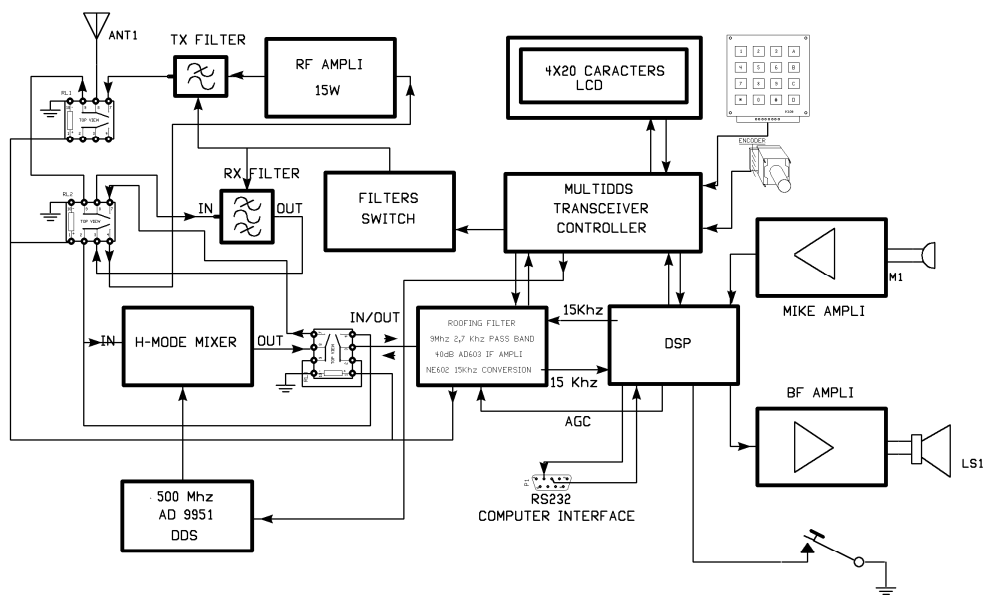DENOISER
AUTO NOTCH
VOX
DIGITAL RECORDER (3sec.)
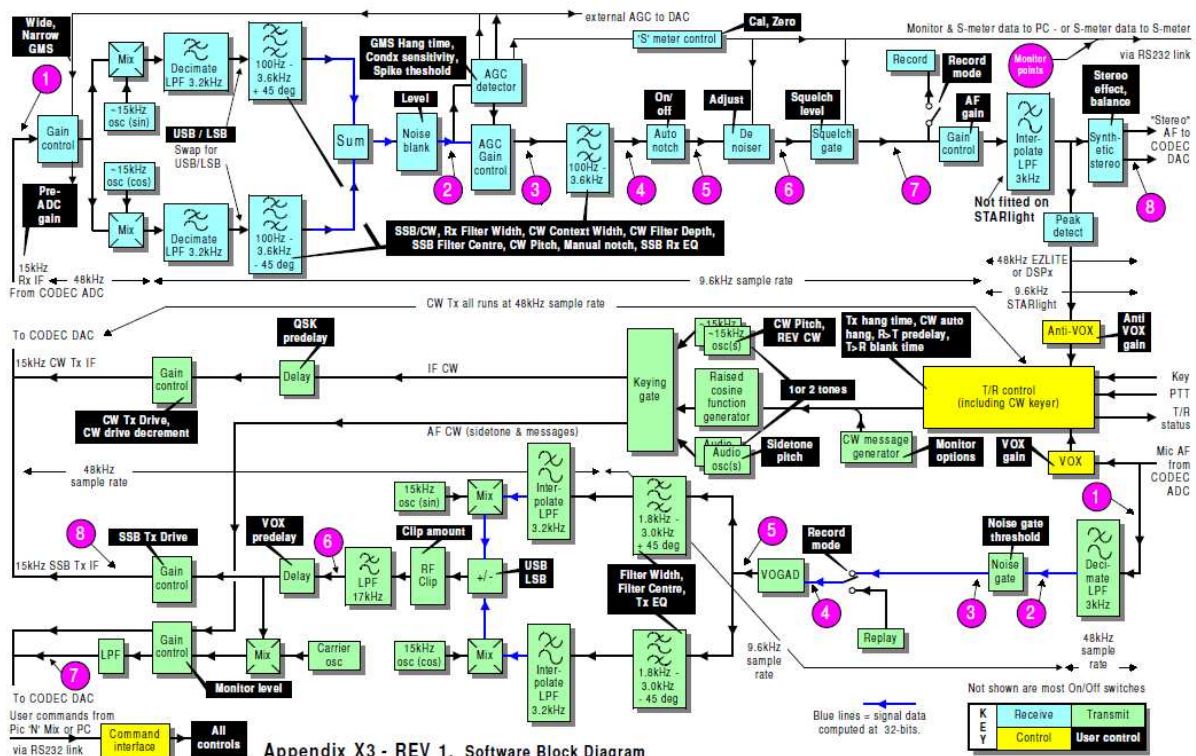DIGITAL COMPRESSOR (Vogad)
STEP 10/100/500 Hz
LOCK

PRE-IN
ATT (20dB)
Digital noise blanker

BLOCK DIAGRAM

Co:	?	RTX-DSP-FCE		
Title:	?	SCHEMA A BLOCCHI		
Board:	?		Revision:	A
Author:	?	Ik0gmm	Size:	A
Date:	?	NOVEMBRE 2011	Sheet 1 of 1	

BLOCK DIAGRAM OF THE SOFTWARE BY G3XJP
DSP ADSP 218xN

Appendix X3 - REV 1. Software Block Diagram

Lists of the all function blocks realized by software written by Peter's, father of the G3XJP PIC-A-STAR project, presented on RadCom in 2007. In our project has been used on permission of the author, then run the software from the data supplied to the DSP by a PIC microcontroller 18F452, whose software, written by Ik0gmm allows control of both DDS and DSP functions of the elementary operation of the transceiver. It is obtained, thus, an apparatus SDR managed without the need for a computer and running in so-called stand-alone mode.
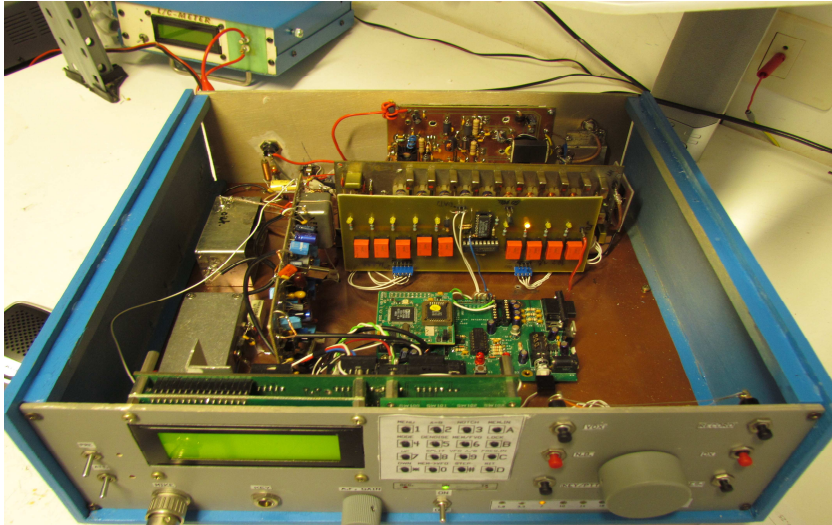This will be the same DSP used in the following years from the Elecraft for his model K3.
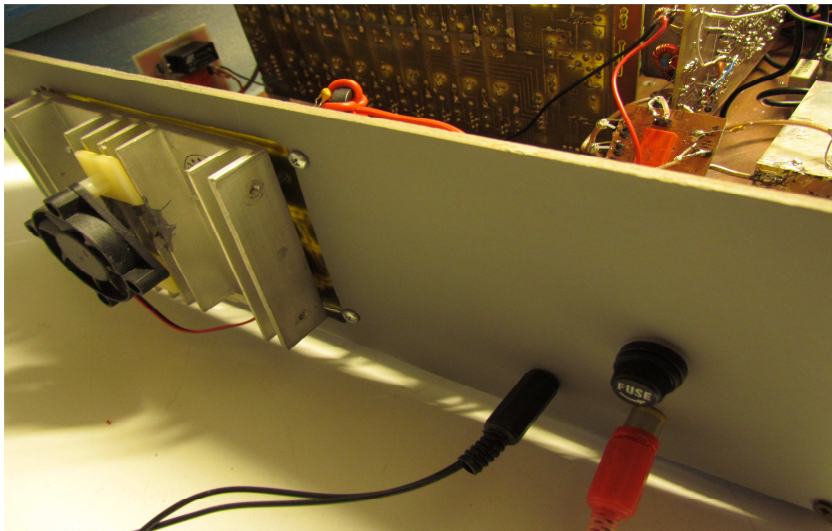
DSP + INTERFACE MODULE
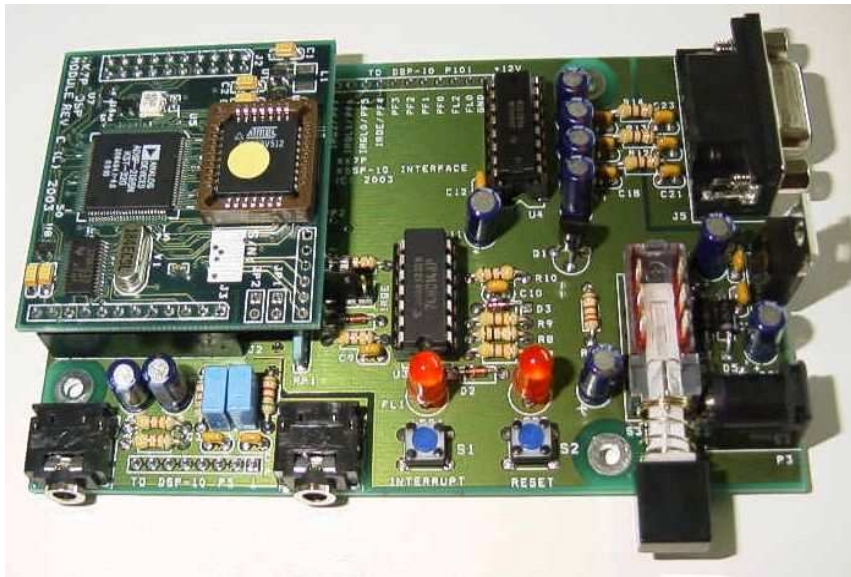
PROTOTYPE IN WOODEN BOX
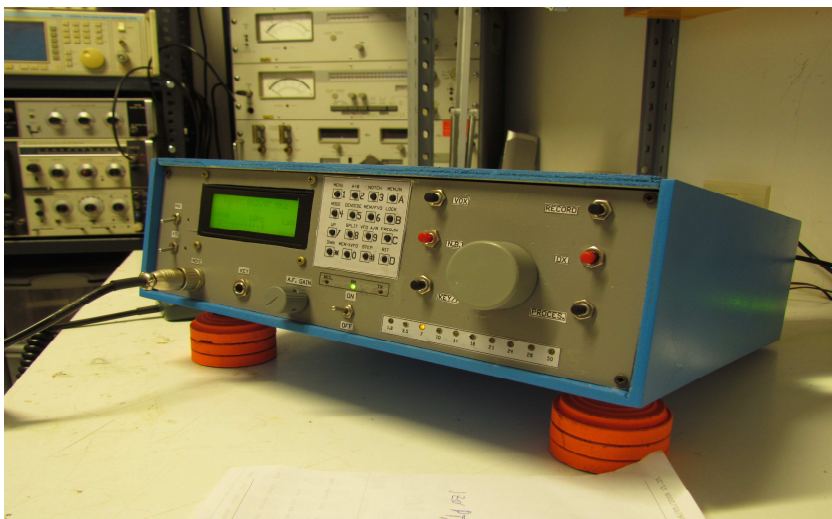
INTERIOR VIEW OF MODULES

REAR VIEW

For this project, there is no module in the kit. Among other things, it seems that the DSP module, available at the TAPR, no longer be available from August 2011

Ik0gmm, December 2011.