The G1SLE digital voice store is a microcontroller based .WAV file player, able to playback mono, 8bit, 8khz .WAV files.

16Mbyte of Flash RAM is provided for storage of up to 16 files each up to 64 seconds (512kByte) long.

Programming is by any terminal emulator able to support Xmodem file transfers.

Assembly instructions.

Assembly is greatly simplified by the double sided, through plated, resist masked and pre-tinned PCB. For the simplest assemble you are recommended to follow the steps below.

1. Fit all 30 surface mount passive components on the lower side of the PCB as indicated on the 'beaconmk2bottom.pdf' overlay.

2. Fit 13 surface mount passive components on the lower side of the PCB, followed by the 3 surface mount IC's as indicated in beaconmk2top.pdf.

3. Fit the 8 x 1n4148 diodes on the upper side of the PCB, observing the correct orientation.

4. Fit the 2 x SIL resistor arrays, the MAX232 and the ULN2803, taking care to observe the correct orientation.

5. Fit the 44 pin IC socket, then the 25 and 9 way D connectors, again observing correct orientation.

6. Fit the 7805 regulator, securing it to the PCB with an M3 screw and nut if desired.

7. Fit 3 x BC183 (eq) transistors, observing the correct orientation.

8. Fit the 10k 22 turn preset and finally the 22.1184 MHz crystal, spacing it slightly above the PCB to avoid shorting the case to the PCB pads.

The 22uF capacitor is used only for in circuit reprogramming of the 89C51ED2 Flash memory and is not normally required.

Connection details

The 9 way connector is wired as a standard RS232 DCE, connection to a terminal
(DCE) is therefore via a straight 9way M-F lead.
All other I/O is by the 25 way D connector as follows.

1. Input. In parallel input mode as this input is taken low file 0 will be played.
    As the input returns to high file 1 will be played.
2. Input. In parallel input mode as this input is taken low file 2 will be played.
    As the input returns to high file 3 will be played.
3. Input. In parallel input mode as this input is taken low file 4 will be played.
    As the input returns to high file 5 will be played.
4. Input. In parallel input mode as this input is taken low file 6 will be played.
    As the input returns to high file 7 will be played.
5. Input. In parallel input mode as this input is taken low file 8 will be played.
    As the input returns to high file 9 will be played.
6. Input. In parallel input mode as this input is taken low file 10 will be played.
    As the input returns to high file 11 will be played.
7. Input. In parallel input mode as this input is taken low file 12 will be played.
    As the input returns to high file 13 will be played.
8. General purpose output. Electrical characteristics as ULN2803 datasheet
9. General purpose output. Electrical characteristics as ULN2803 datasheet
10. General purpose output. Electrical characteristics as ULN2803 datasheet
11. General purpose output. Electrical characteristics as ULN2803 datasheet
12. General purpose output. Electrical characteristics as ULN2803 datasheet
13. General purpose output. Electrical characteristics as ULN2803 datasheet
14. Vcc. DC supply +24 to +8v DC at up to 200mA.
15. Gnd. Supply ground.
16. AF out. AC coupled audio output at up to 4v p-p
17. NC
18. NC
19. NC
20. NC
21. NC
22. NC
23. General purpose output. Electrical characteristics as ULN2803 datasheet
24. TX key output. This output is pulled to ground during .WAV file playback.
    Electrical characteristics as ULN2803 datasheet
25. General purpose output. Electrical characteristics as ULN2803 datasheet

Programming.

All .WAV files for playback are stored in flash RAM. The flashram is typically capable of 100,000 erase/write cycles and provides data retention for typically 20 years without the need for batteries or other power supply.
To enter program mode connect the 9 way D COM port to your PC serial port and start up Hyperterminal (or similar) selecting 115200 baud, 8 data 1 stop, no parity, no handshaking, no local echo. Now power up the beacon PCB.
Your terminal should display

G1SLE Digital Voice Playbach unit Rev1.0

+++ for progmode, wait or any other character to continue

You should now enter +++
The unit will respond with

G1SLE Voice Beacon controller
4800 or 9600 baud control port rate (4 or 9)

In normal operation the controller listens for on its serial port for commands in the format *PXX where XX is a prompt number from 00 to 15.
The baud rate that the controller listens at is set here. Enter 4 for 4800 or 9 for 9600
The unit will respond with

Would you like to upload .wav beacon files now (y/n)

Beacon files on mono, 8bit, 8khz .wav format are loaded using Xmodem.
Enter Y to begin uploading files now.
If files are already loaded and no changes are required you can exit to normal operation by entering N.

 'E'rase, 'P'rogram, 'L'isten or 'D'one?

To erase a file or the whole array enter E
The unit will then respond with

Erase block number 0 - 15. 16 for whole array

Enter the number of the file to be erased, or enter 16 to erase the whole array leaving the flash RAM empty.

To listen to a file enter L
The unit will respond with

Play prompt number 0 – 15

Enter the number of the file to play. The unit will play the selected file and then retyrn
to the prompt

'E'rase, 'P'rogram, 'L'isten or 'D'one?

To upload a .wav for playback enter P
The unit will respond with

Prompt number 0 to 15

Enter the prompt number you wish to upload the file to.
The unit will respond with

Ready to receive file by Xmodem press a key then start upload

Press a key and within 8 seconds initiate the Xmodem transfer
When the file is transferred the unit will display

'E'rase, 'P'rogram, 'L'isten or 'D'one?

When you are done erasing / playing / uploading files enter D
The unit will switch to normal operation, programming is complete.