Setting up PowerSDR for Digital Modes with the Softrock Ensemble RXTX

This is how I set up PowerSDR (PSDR) with the Softrock Ensemble RXTX using a single sound card. This is for digital modes (PSK, JT65HF, WSPR, RTTY) only. I used both an unsupported card and a Delta44. I found that latency was a problem with the unsupported card (SoundBlaster X-Fi), but nothing that prevented me from working a QSO. I found that I could work CW with the Delta44, but there was just enough of a delay that using an iambic keyer was out of my skill level. I have a feeling if I had a faster machine, CW would work just fine. (For reference: I've been working CW since the early 60's.) Other than that, using the Delta44 was not a big game-changer. I imagine it would work OK with SSB, but to test it, I'd have to get my microphone out of the spare equipment bin.

This is the software I needed for the application-to-application interfaces:

- Virtual Audio Cable (VAC). http://software.muzychenko.net/eng/vac.htm I tested with the demo version, but upgraded because of the annoying vocalization "Trial" that kept popping up. This pipes audio between the PSDR and your digital program(s). Use version 4.9. I found I couldn't receive WSPR or MFSK16 with version 4.10.
- VSPManager. See http://k5fr.com/ddutilwiki/index.php?title=Main_Page. Contact the author, and give him your callsign. He will generously allow you to use the software for your own personal use. This allows T/R control via the digital program. (While use of VOX is satisfactory for digital applications, VOX cannot be triggered from an unsupported sound card.)

Here are the applications I tested:

- PowerSDR version 1.19.3.15 by SV1EIA. Other versions will not work!
- MMTTY (RTTY)
- Digipan (PSK)
- WSPR (WSPR)
- JT65-HF (JT65-HF)

Follow the instructions for VAC. You will need 2 virtual cables. They should appear in your sound card drop-down menus as VAC1 and VAC2. Do not check "Volume Control" in the control panel when you create the cables. Make sure the range of sample rates matches your software. Digipan maxes out at 12kHz. Just specify 32 bits per sample as the maximum.

Similarly, follow the instructions for VSPManager. You will need one serial port pair. You will get 2 port numbers: one for each end of the interface. I used COM2 and COM4. Your results may vary.

In PowerSDR, we will specify settings in the General, Audio, and CAT Control tabs as follows:

- General tab:
    - Check SDR-Si570 and USBtoI2C
    - Uncheck "Receive Only" ☺
- Audio tab:
    - Primary subtab (Unsupported Card):
        - Specify "Unsupported card" in the Sound Card Selection pull-down menu
        - Driver: MME
        - Input: (specify your hardware sound card)
        - Output: (specify your hardware sound card)
        - Mixer: None
    - Primary subtab (Delta44):
        - Specify "M-Audio Delta 44" in the Sound Card Selection pull-down menu
        - The rest should fill in automatically
    - VAC subtab:
        - Check Enable VAC
        - Driver: MME
        - Input: VAC2
        - Output: VAC1
- CAT Control:
    - In the PTT section, specify COM4 (my settings)
    - Check RTS
    - Only then, check Enable PTT

In each digital program, you'll find menus for the sound card and either PTT or Serial Port. The PTT or Serial Port items specify the same thing: transmit/receive switching. Here you will specify the opposite side of the virtual serial port cable. In my case, this would be COM2 because I specified COM4 (the other end) in PSDR. . In the sound card menu, you'll specify Input: VAC1, and Output: VAC2. This is the opposite of the VAC subtab in PSDR.

Hardware: From your sound card, connect stereo cables from the Line In on your card to Line In on the RXTX, similarly for Line Out. Also, connect the USB cable, power, and the antenna. With this setup, I found that you should have the Ensemble RXTX's input jumpers straight, and the transmit jumpers crossed. In actuality, I manufactured the rig with all jumpers straight then made a cable with the channels crossed. The Delta44 uses mono inputs, so you can reverse I/Q at will. The Delta44 also gives you a separate output you can use for a speaker. With an unsupported card, you have to use a Y-connector to drive the speaker.

Al Gerheim, K1QN alpg49@gmail.com