

By Ken Hopper, N9VV

Where to begin... The Linux community is populated by programmers and computer geeks who have the same core beliefs as many Ham Radio operators - there should be a free exchange of ideas and information to benefit the whole community.

It is natural for Hams to migrate to the Linux Operating System if their interests carry them to the PC and especially the new digital modes for SSB Voice, SSTV pictures, and popular keyboard modes such as RTTY, PSK31, MFSK, and Olivia. Many of the new modes are finding their way into the Emergency communications and Military Affiliated Radio Systems (MARS) activities.

Many hams are unsure about how to interface their radio equipment to their computers. There are many competing solutions varying from \$15 kits to \$450 integrated systems. Each of these has its merits and the sustained sales show that hams find those products appealing and within their budgets. I chose Tigertronics.



Figure 1 - Tigertronics Signalink USB

The Tigertronics Signalink USB offers a solid and compact solution with the great simplicity of two connections to my Kenwood TS-480SAT. Tigertronics offers pre-wired cables for most all Ham rigs. The Signalink USB is a complete self-contained "USB sound card" in an external box. In particular this means that it frees the PC or laptop sound card for other important connections, such as the audio output from the new digital SSB mode FDMDV.

I plugged the USB cable into my PC and the mini-din cable into the AUX connector on my TS-480SAT. The installation could not be easier.

The Signalink USB has all the necessary gain controls right up front. There are no hidden sliders or obscure sound control - you just turn the knobs for Tx and Rx gain as needed for your AUX input and output. Tigertronics cleverly included a full tone driven PTT circuit in the Signalink USB, so you have no problems or confusion with RS232 cables, and COM ports. Many laptops have no RS232 connections, so this in addition to it's small size makes the Signalink USB especially well suited to portable installation and operation.

The Signalink USB has a third knob, the "Delay" control, on the front of the control box. At first I was not sure how to use the delay control, but I quickly discovered that many programs require a "hang" time (like VOX) in between bursts of digital tones. EasyPal is an example.

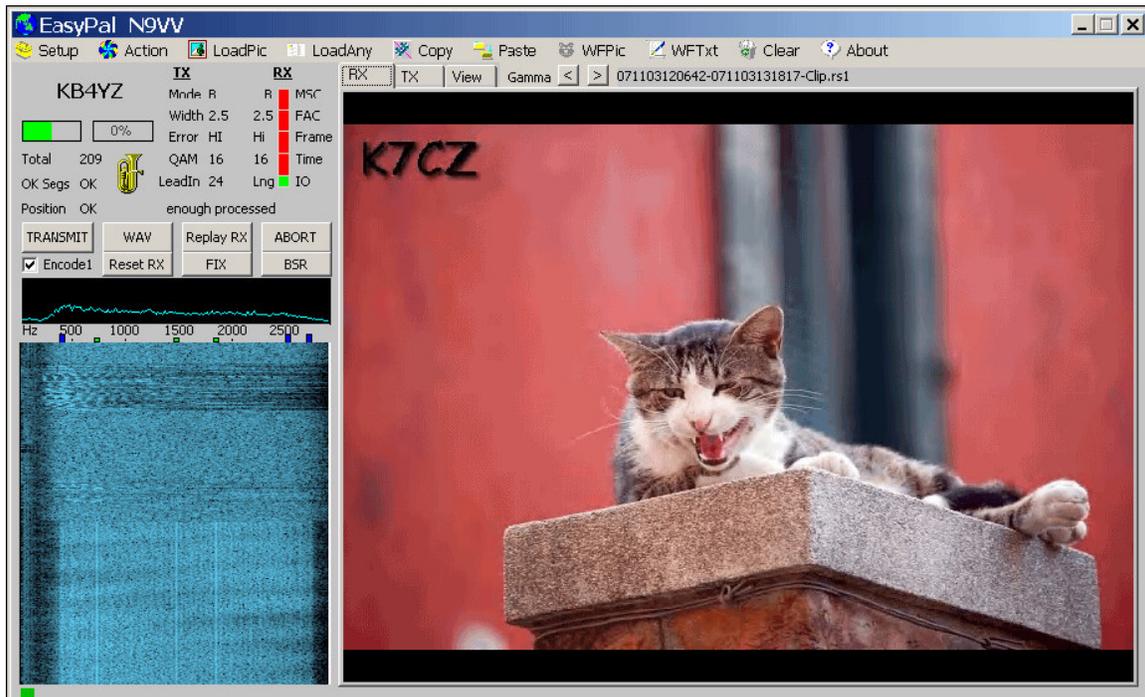


Figure 2 – EasyPal SSTV

In EasyPal, when you send text in the Waterfall, there is a gap between lines of transmitted text and the signal stops - breaking the PTT connection. The Signalink USB delay control accommodates this intermittent drop with a smooth hold function that carries you through to the next text line without dropping PTT.

Operating your PC with digital modes is always fun and rewarding. In Microsoft Windows you have all the supporting mixers and audio device identification at your fingertips. In Linux the connection is a bit different, but the Signalink USB has made the interface straightforward and obvious.

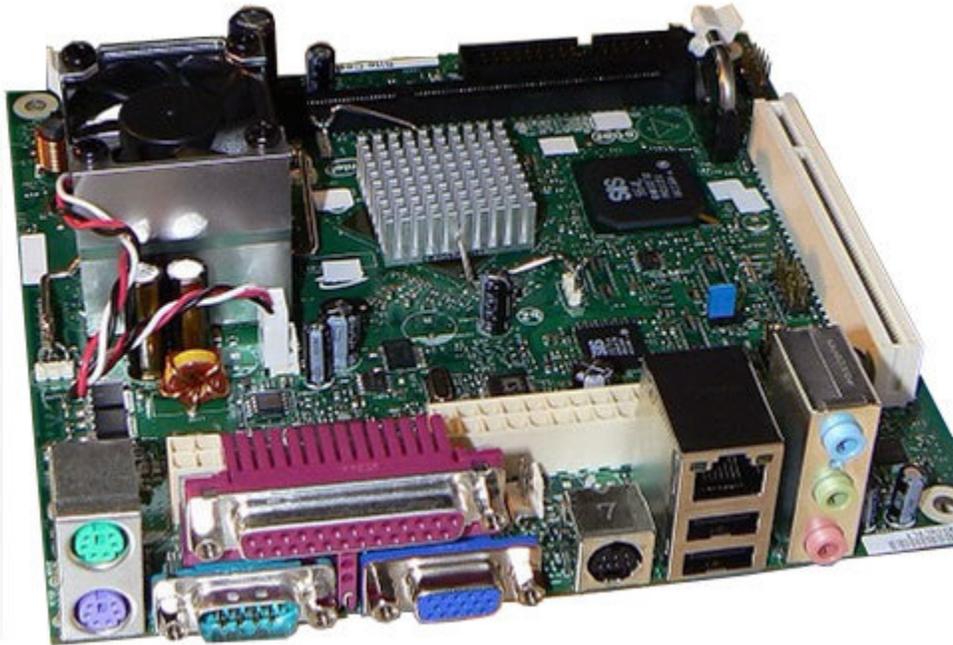


Figure 3 – Intel D201GLY mITX motherboard

To test the keyboard digital modes Phil N8VB recommended the miniature motherboard computer the Intel D201GLY.

<http://www.intel.com/products/motherboard/D201GLY/index.htm>

I found the D201GLY online at LogicSupply for \$69. Having a small computer that is powered from 12vdc is quite a change from the traditional desktop system that is tethered to the 110vac outlet! I can use the power supply in the shack or even from a car battery in portable operation. It is very small and

easily fits inside a strong metal case (also from LogicSupply). The D201GLY offers the traditional USB, PS/2, and video interfaces that I needed.

I have subsequently expanded the mITX system with an inexpensive laptop hard drive that fits nicely in the LogicSupply case. A hard drive allows me to test some of the larger Linux distributions such as Ubuntu, Mandriva, and OpenSuse.

The choice of a Linux distribution was bewildering at first. There are literally hundreds of Linux flavors. Every talented operating system designer has his or her own concept and list of needs for a Linux distro. I found the Distrowatch.com list of distributions to be the best online resource. There are dozens of "LiveCD" type Linux example systems. On a system with a CDROM, you can just download the .iso file and burn it to a CDROM. Then reboot and your system should come up in Linux ***only using*** RAM and ***not*** touching your hard drive in any way. You are fully protected and your Windows (or MAC) installation remains safe and undisturbed.

However my little mITX system had ***no*** CDROM on it. It is a minimal system and the only choice open to me was a Linux distribution designed and configured for a USB interface. The most popular USB interface these days is the "Flash stick". These miniature keyring type devices sell for \$5 to \$85 and range from 512MB to over 8GB. A friend found a 4GB flash memory stick at the local Grocery store for \$25! So I rummaged around in my junk box and found a 512MB flash stick. It was perfect for the EMCpup distribution from Dave W1HKJ. I used the directions on his webpage to download and prepare the USB flash memory stick from my Windows XP system.

I plugged the USB stick into the mITX system, powered it up, and to my amazement there on the screen was a FULLY functional Linux operating system WITH HAM APPLICATIONS. All I had to do was plug in the USB interface from my Signalink USB and I was watching PSK31 signals on 14.070 without even breaking a sweat. :-)

I have included some pictures of how my screen looks when I am receiving a PSK31 signal on the EMCpup Linux distribution from Dave W1HKJ.

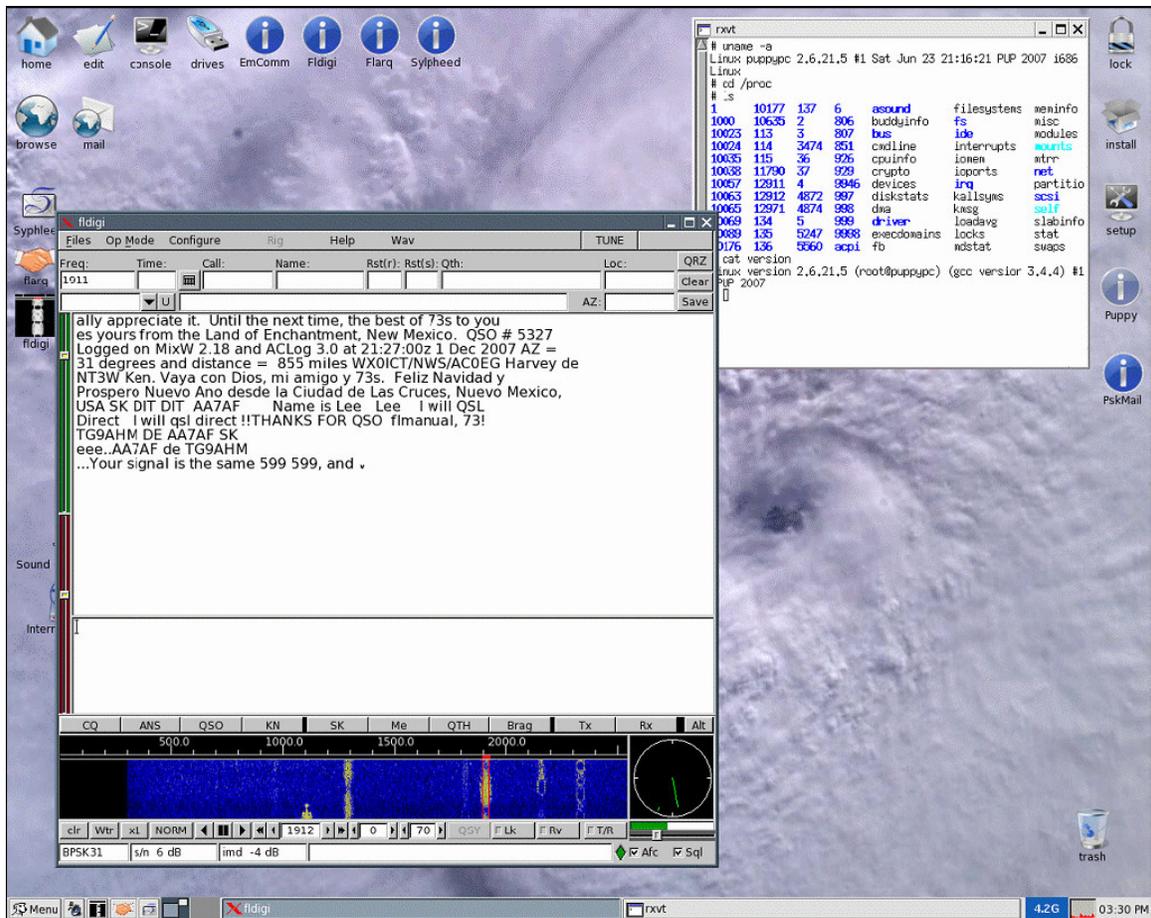


Figure 4 – EMCpup 2.17.04

Dave's interest is to be sure that a good solid software foundation is in place for various applications. Dave and Skip KH6TY have collaborated to form an important Emergency Communications collection of software that includes the fldigi and Pskmail programs among others.

<http://www.w1hkj.com/emcpup.html>

Reference links:

<http://distrowatch.com/>

<http://www.pendrivelinux.com/2007/11/04/usb-pendrive-linux-install-from-windows/>

<http://puppylinux.org/wikka/LatestNews>

<http://groups.yahoo.com/group/linuxham/>

<http://www.w1hkj.com/emcpup.html>

<http://cdimage.ubuntu.com/gobuntu/daily/current/>