News about NinoTNC N9600A2 --- starting field tests

Tadd KA2DEW in NC (/g/ninotnc/profile/@Tadd)

Jan 6 (https://groups.io/g/ninotnc/message/1)

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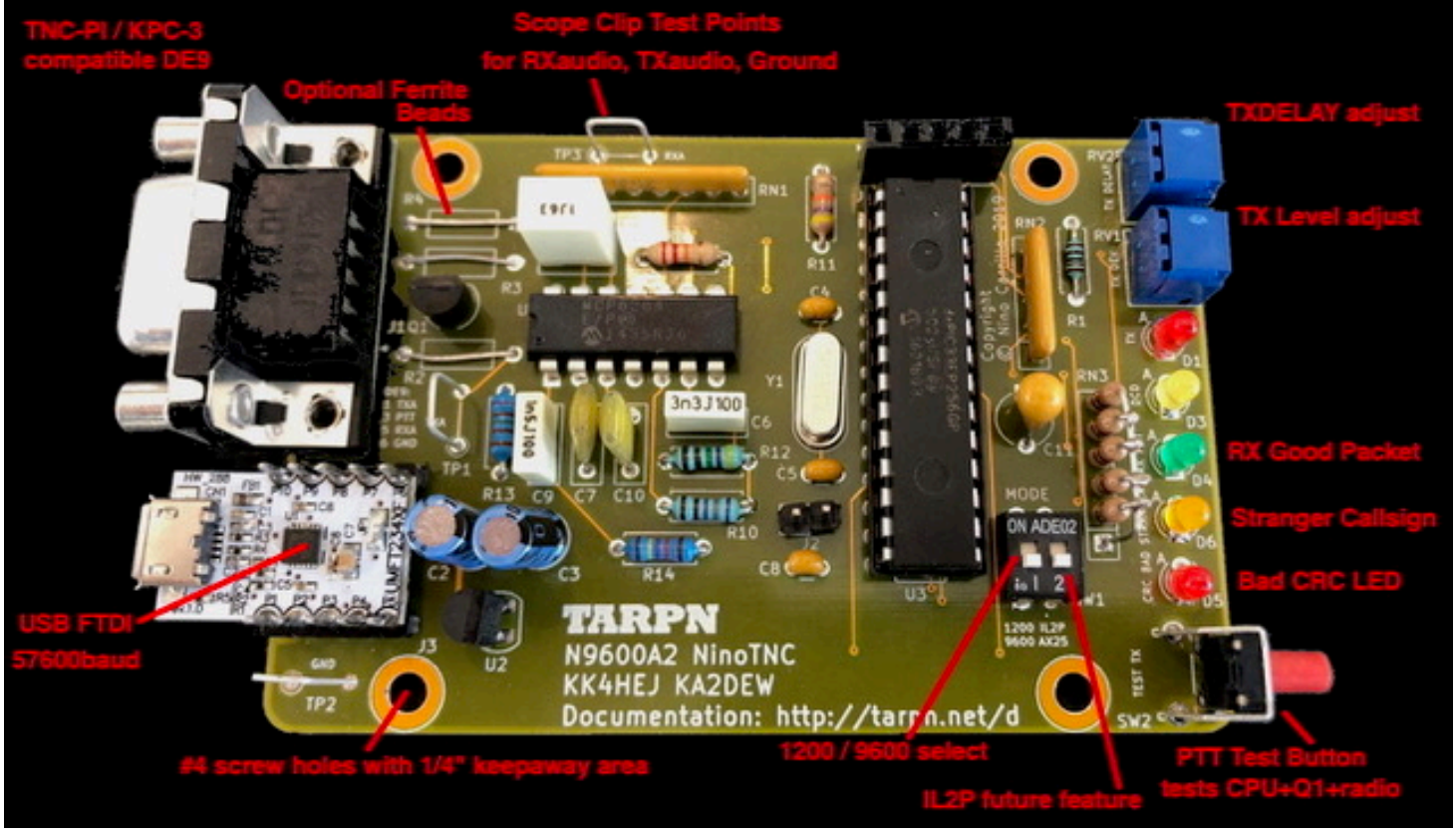
TNC-PI is gone. See http://tnc-x.com (http://tnc-x.com/)
Thanks to John W2FS for supporting ham radio projects in general for decades!

MFJ is taking over some of Coastal Chipworks' TNC projects, but at a 50% markup? Not sure about that but it looks that way.

NinoTNC, featured in a recent CQ magazine article (digital released 4 days ago, print in a couple of weeks), will be made as a purely hobby project, no markup, and will be both a 9600 baud TNC and also do what the TNC-X does, for less than the price of a Coastal Chipworks KIT version TNC-PI. For those willing work in the cheap-kit side in ham radio project work, this is going to be most excellent.



The NinoTNC N9600A2 (hopefully production-ready) sample boards have arrived. This is the 3rd version of the PCB, firmware, and design. The first two versions were sent out into the wild in a small quantity, of 10 each. Each time we found significant ways to improve the feature set and design, but the very first models worked well as G3RUH TNCs.

Nino has two of the latest N9600A2 version built and bench testing. I just got my first two PCBs and have started photographing assembly instruction photos. We have a couple of months of experience with the N9600A0 and N9600A1 boards at 9600 baud with 3 working point to point links.

New in the A2 version is 1200 baud Bell 202 modem support, and IL2P. The 1200 baud and IL2P on-the-air testing starts in a week. Bench testing has been in progress for a couple of weeks. The A2 board has a hardware change in the audio circuitry which affects 9600 baud, and which needs testing. In the A0 and A1 board, the TXDEV adjustment for driving a data radio had a range to cover the relatively restrictive input ranges needed by data radios. Now that there is 1200 support, the TXDEV needs to be adjustable for mike level audio as well. Does adding to the range make this too hard to use? Good question.

Once we are satisfied with the firmware and hardware, and hopefully before the end of

January, we'll order 100 bare PCBs and CPUs and 2 weeks after that, when the boards and CPUs arrive, we'll make the PCBs and CPUs available for sale. The production versions will be black.

NinoTNC is a USB KISS TNC
The USB serial port is an FTDI chipset running at 57600 baud. It should work on Raspberry PI, MacOS, MSWindows.
The DE9 connector is the same as for the TNC-PI so the cables we've already made for TK radios and Vertex radios will plug right in.

The product currently supports
1200 baud AX.25 Bell 202
or
9600 baud AX.25 G3RUH

OR

1200 baud IL2P Bell 202
or
9600 baud IL2P G3RUH

IL2P, selected by a dip-switch, is a new link-layer bit sending/receiving scheme which molests the AX.25 KISS frame into what we're calling IL2P. It does Forward Error Correction, which means we add extra data to the transmitted message in the hope that the receiver can reconstruct an otherwise-damaged message on a noisy link, before or without depending on a retry. This is a trade off, because the packet gets longer, but rarely needs a reset.
Most packets sent by NinoTNC in IL2P, are not decodable with a TNC-PI or older device. The NinoTNC will send out a periodic AX.25 Unproto packet of its own which includes the originator callsign, and the web address of the protocol description.

If both ends of a not-too-solid dedicated link run this new TNC, then we can turn on IL2P and reduce the retry rate. This will only fix bit-error problems. If the packets are getting crushed by overload interference from another radio in your house, IL2P won't help! It's unlikely that IL2P will be useful ***except*** in dedicated point to point links.

The new IL2P runs at 1200 baud or 9600 baud selectable. This is still mostly AX.25 and

the KISS operation of the NinoTNC is identical regardless of the IL2P mode switch.

Before we ship this, we will have a description of the protocol for legal purposes and it will be on the TARPN website for all to examine. There is some chance we'll change the protocol along the way because somebody gives us a better clue but Nino has invested quite a bit of time into this already.

Some of this is subject to change. The 1200 baud and IL2P support is all completely new and has never seen field testing. So this will be a fun month!
Purchasers of the product early on will be early adopters and will be helping the engineering efforts. Thank you for your support. However…

How much does this cost?? $40 including shipping to domestic (USA) purchasers!
Cost is what it is about. We're not taking any profit, or allowing for support expenses. We're planning on pointing the buyer at Digikey to buy the parts for about $25 including USPS shipping. We have a simple upload-to-Digikey, push BUY, process. See our website below. A CPU and PCB will be bought for you separately and sold to you with shipping for about $14. We'll also offer ten sets of CPU+PCB for $100 with shipping. We won't have ANY margin for parts replacements or warranty updates. The replacement processor or upgrade would cost $14 and you get a free PCB to make a club callsign ID badge out of? I'm hoping some individuals will buy a bunch of the TNC parts sets for their local network efforts and will become the local guru for these things. I don't know what Digikey or Mouser or the Chinese vendors can do for us in terms of a quantity discount. Somebody could make a business out of shopping for the good prices on the various components.

So… if there is no support, what if something goes wrong? It depends on what goes wrong. Shipping and replacement parts will be a bastard if a package gets lost in the mail, so we'll make sure our shipping plan is a good one.

If this gets out of hand, we'll raise the price. Giving the design away to a profitable enterprise or making it wholly open-source (i.e. you make your PCBs yourself and program the chips yourself) is another. There aren't many other ways to play this. We'll try to do a good job. You try to do good too, and the price stays really cheap!

This all has an impact on early adopters too, of course, because we're not allowing any costs for field-testing expensive. Those of us who chose to field test the early units will be bearing the brunt of replacement parts and shipping expenses, if any. This isn't that

big of a deal, but you do need to know this, and we really appreciate your support.

What about a housing for this device?
We're interested in coming up with an open-source housing design. We're also interested in a pro-bono you sell a housing for us, source. We have some ideas for how that should go. Some of the locals here in NC have said they want to pursue this. You are welcome to do so as well. Send an email to ninoTNC reflector and we'll make sure all the housing makers get in touch with one another.

Here's the link to the new TARPN hardware documentation website which includes the NinoTNC:

http://tarpn.net/d (http://tarpn.net/d)

Hat's off to KK4HEJ for inventing this beautiful TNC.

Tadd

Tadd / KA2DEW
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Raleigh NC FM05pv

"Packet networking over ham radio": http://tarpn.net/t/packet_radio_networking.html (http://tarpn.net/t/packet_radio_networking.html)
North Carolina Packet Radio Network: http://ncpacket.net/north_carolina_packet_network.html (http://ncpacket.net/north_carolina_packet_network.html)
Local Raleigh ham radio info: http://torborg.com/a (http://torborg.com/a)