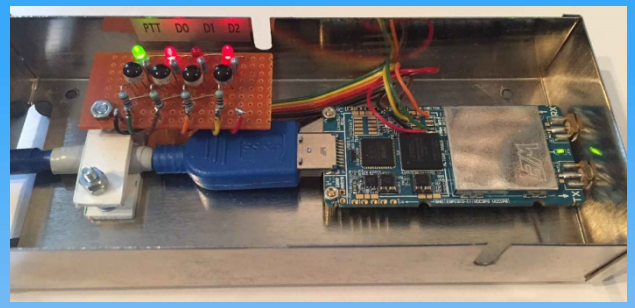
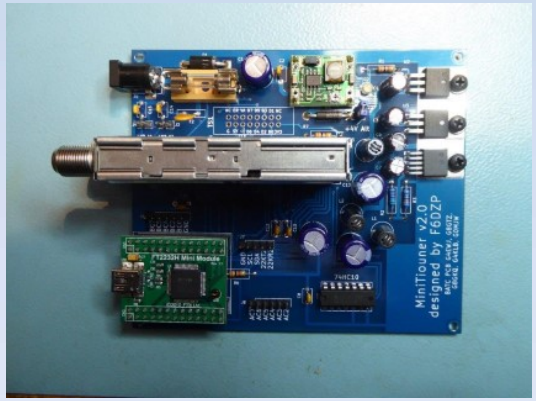


Portsdown 2019 Update

Dave G8GKQ



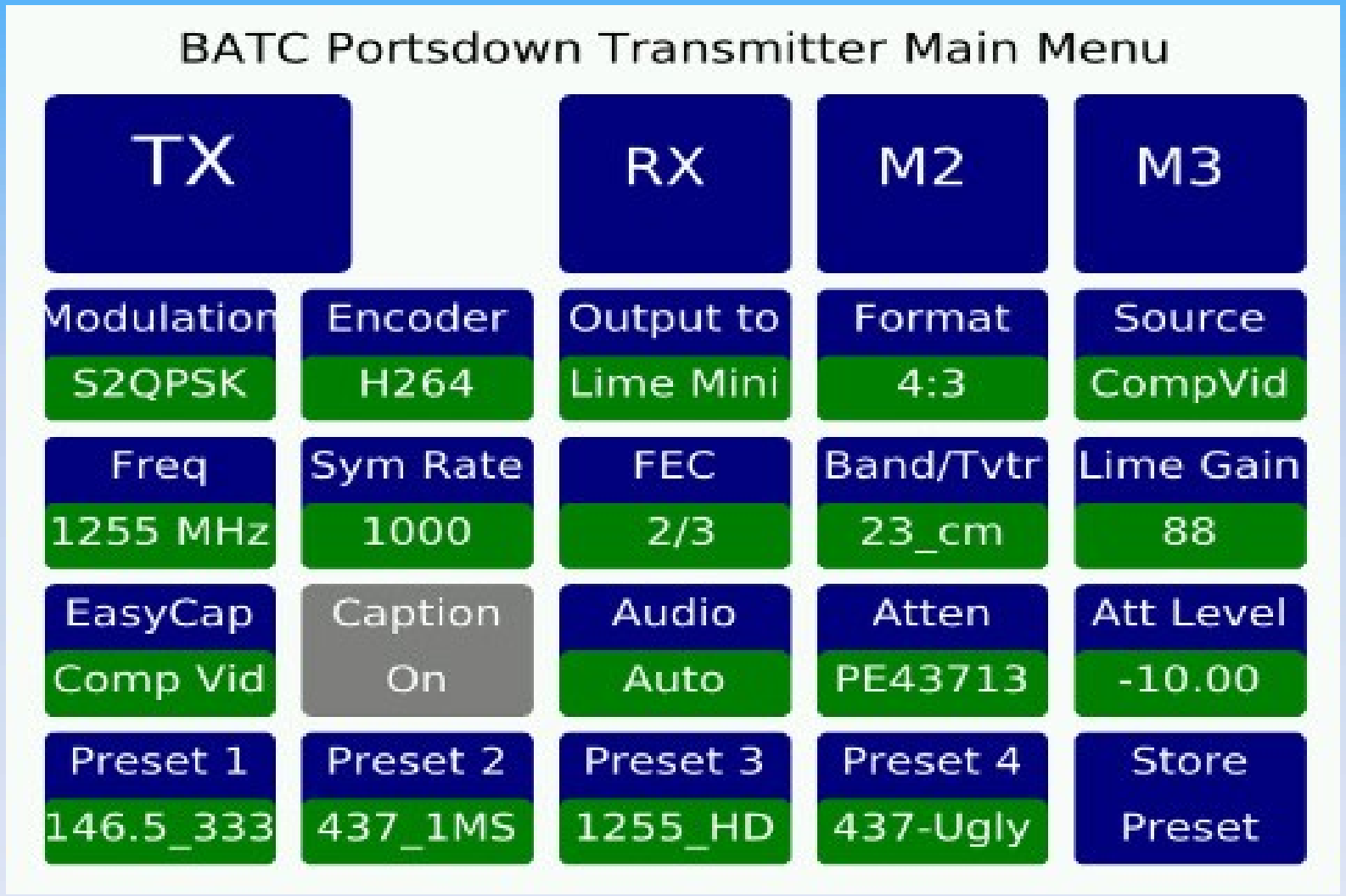
Topics

- Recent Changes
- The LongMynd Receiver
- The Raspberry Pi 4
- What next for Portsdown?
- Beyond Portsdown as we know it
- Q & A

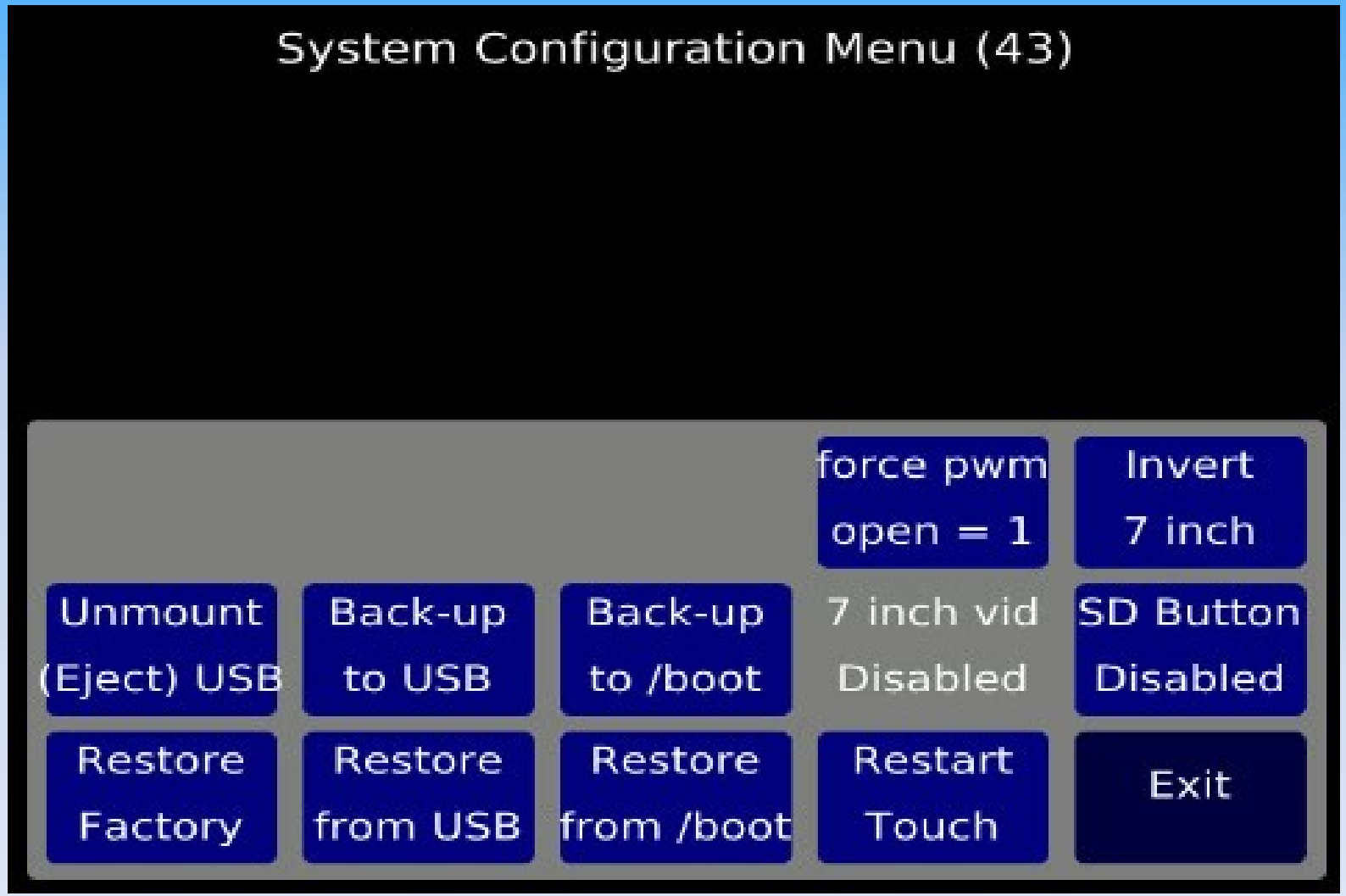
Review and Recent Changes

- Now over 400 Users
- LimeSDR Improvements
- Video out with 7 inch Screen
- LimeNET Micro support
- LongMynd Receiver
- Experimental Jetson Control
- (moved house!)

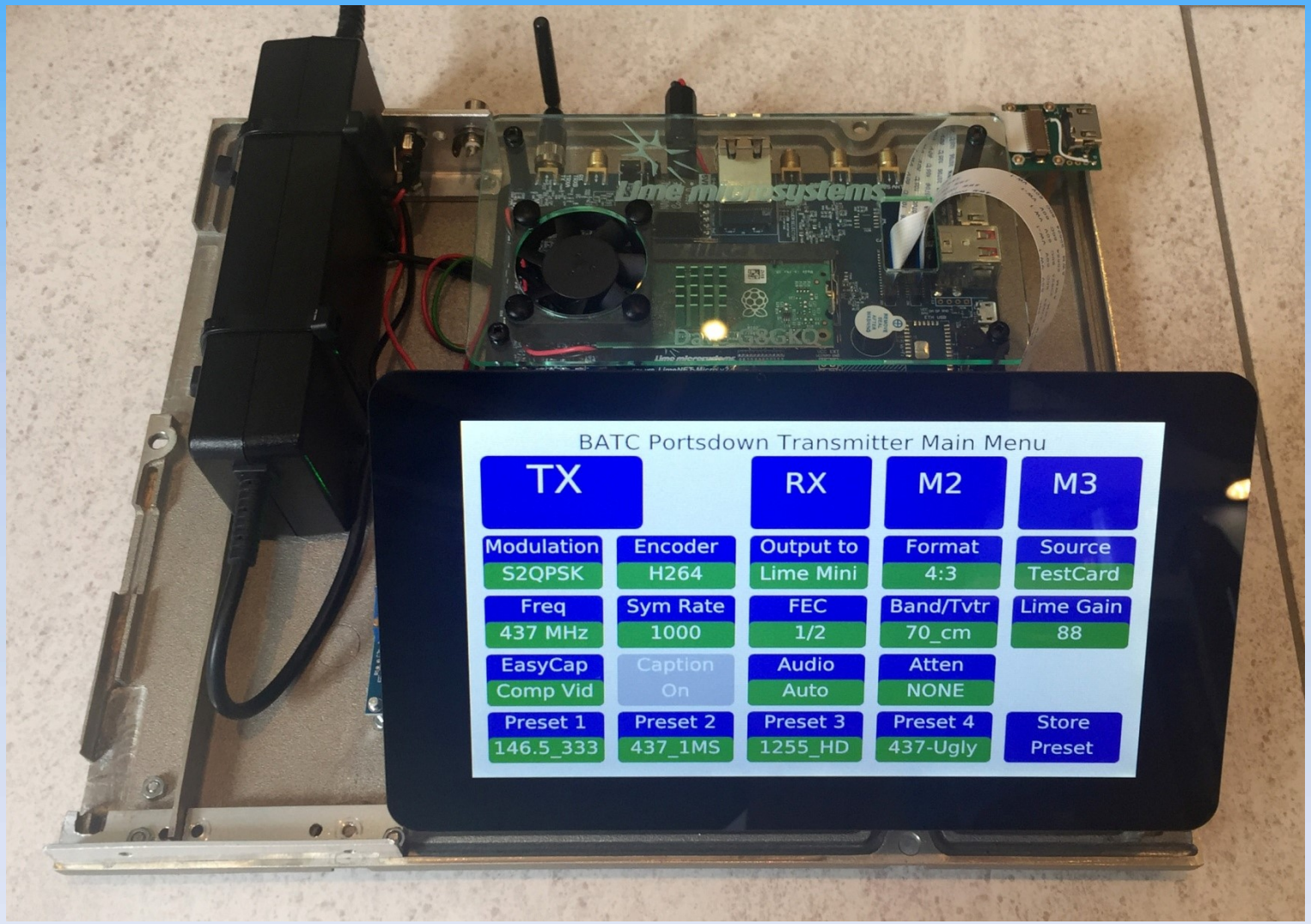
Attenuator Level on Menu 1



Video out with 7 inch Screen



LimeNET Micro Support

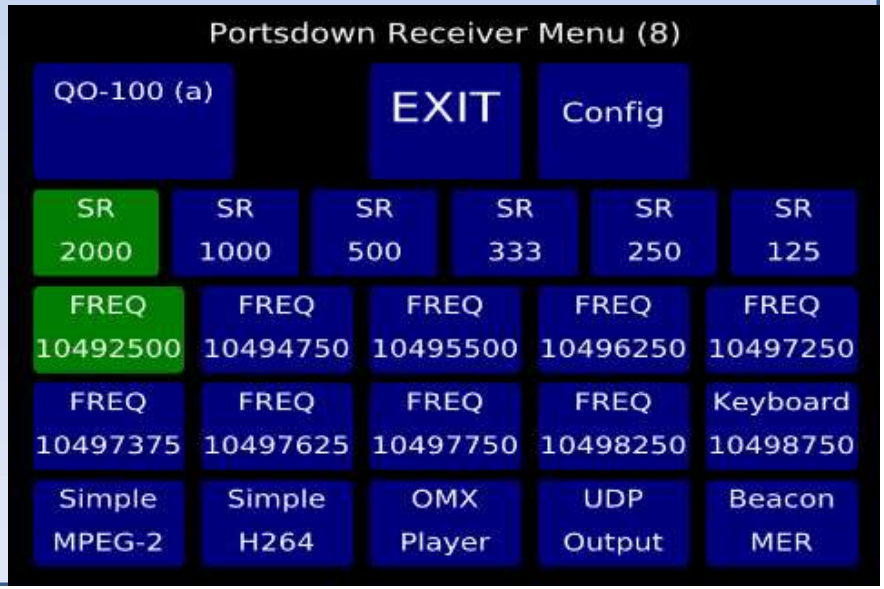


The LongMynd Receiver

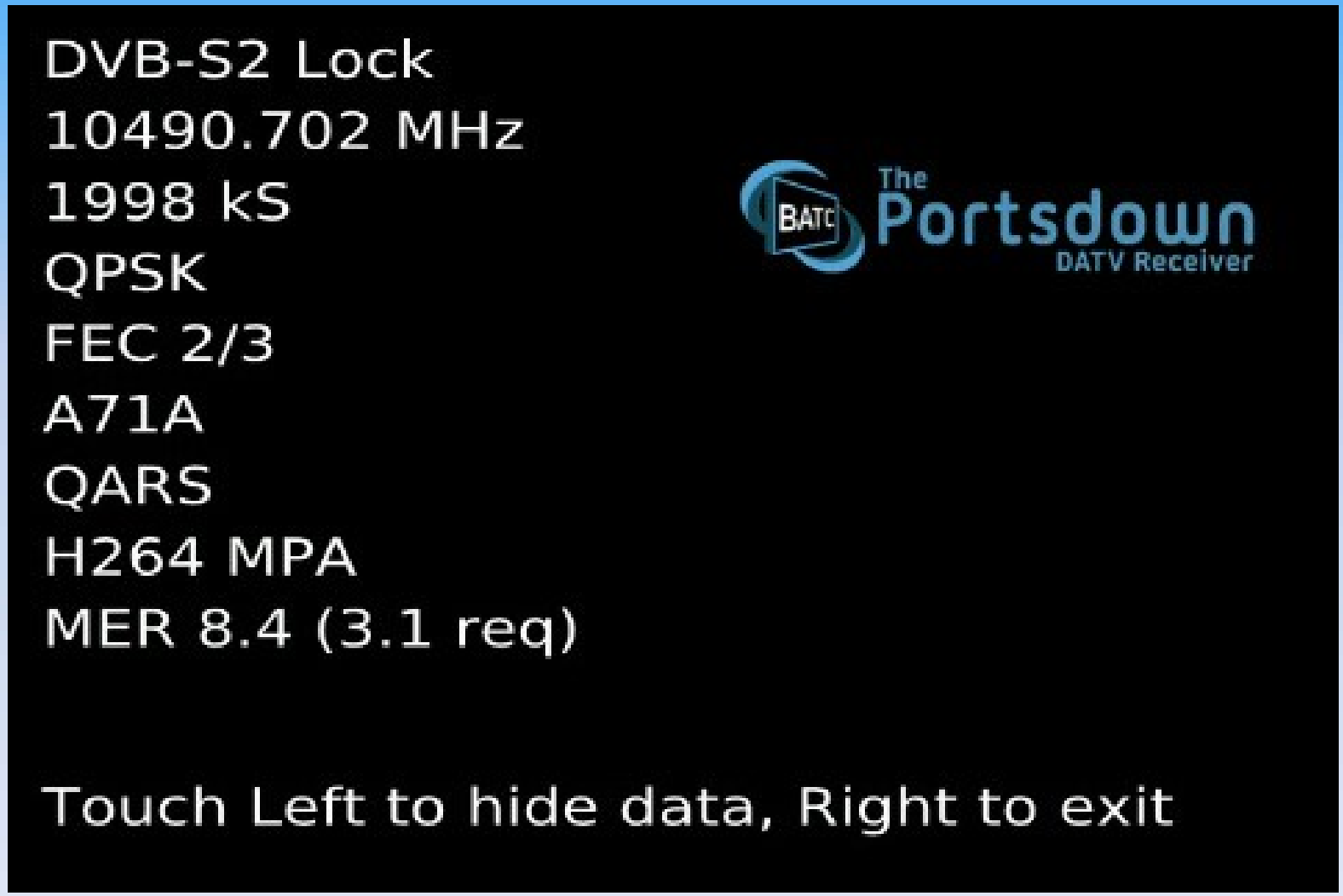
- Linux receiver to go with MiniTiouner
- Developed by Heather MOHMO
- Will run on most Linux platforms
  - Ubuntu Desktops and Laptops
  - Raspberry Pi
- Does not include a video player
- Command Line in, TS and status out

LongMynd in Portsdown

- Frequency and SR selection Buttons
- Choice of video player
  - Simple MPEG-2 or H264 (no audio)
  - OMX Player for H264 with Audio
  - UDP to another player
- Sat/terr modes
- Status Display
- QO-100 Beacon MER
- Configuration



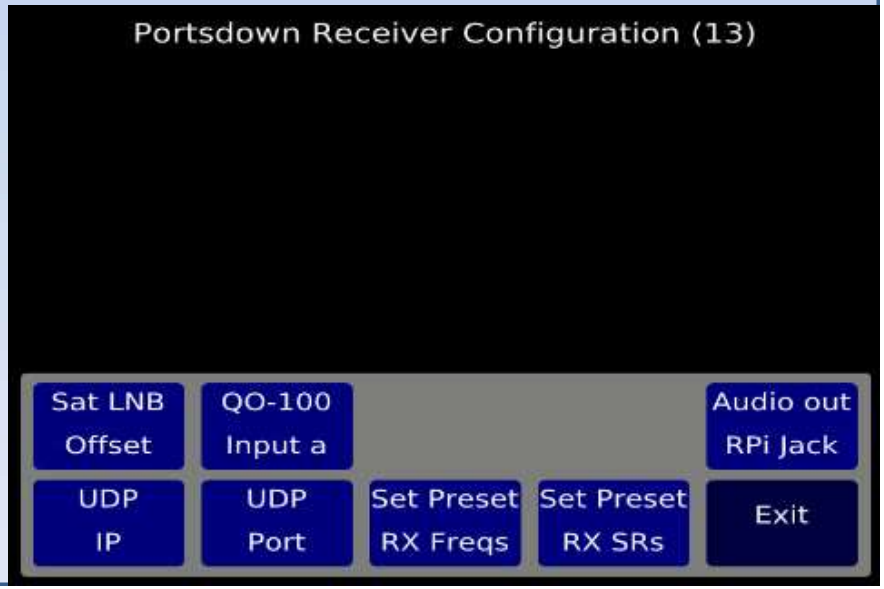
Status Display



QO-100 Beacon MER

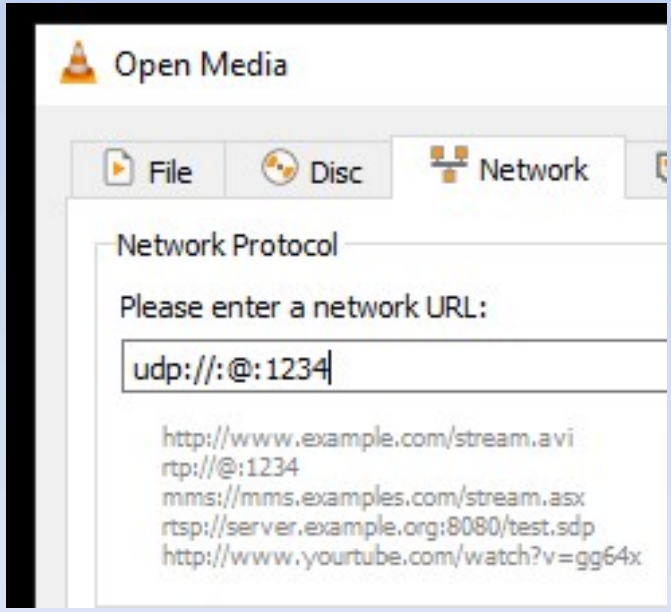
Configuration

- Sat LNB Offset (default 9750000 kHz)
- Audio output port
- UDP IP and Port
- Sat or Terrestrial from main menu:
- Input Socket
- Preset Freqs and SRs



UDP Settings

- Set IP Address of viewing device
- On viewer, set udp://:@:1234
- String is not always displayed correctly



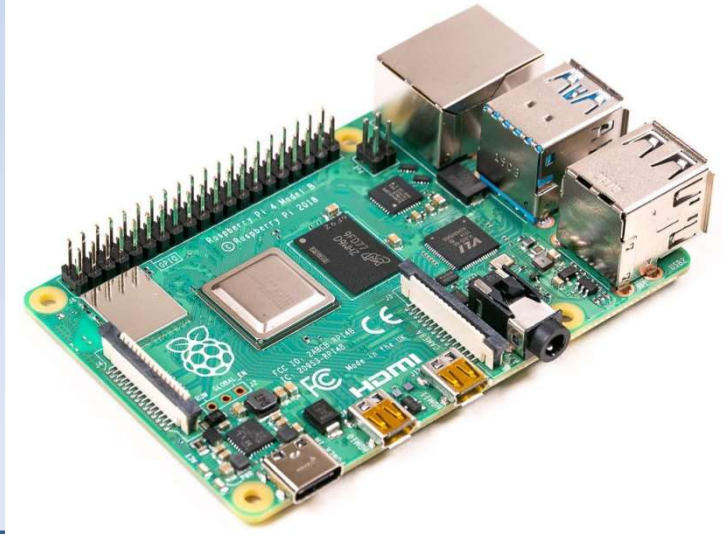
Portsdown LongMynd Limitations

- Will not play anything over 720p
- Will not play H265
- MPEG-2 playback requires licence
- Use UDP and VLC for all these!
- Does not control LNB voltage

- But a great capability!!

Raspberry Pi 4

- Step change in capability
- New graphics hardware:
  - Includes H265 decoder
  - Does not support OpenVG (Portsdown Menus)
- Requires Raspbian Buster or LibreELEC



Portsdown RPi 4 Migration

- Migrate Portsdown to Buster on RPi3
- Use RPi 4 to display UDP from LongMynd
- Build Python menu for LongMynd on RPi4
- Migrate Portsdown TX features to RPi4
- Rebuild Portsdown Menu in Python

Portsdown RPi 4 Migration

- Migrate Portsdown to Buster on RPi3
- Use RPi 4 to display UDP from LongMynd
- Build Python menu for LongMynd on RPi4
- Migrate Portsdown TX features to RPi4
- Rebuild Portsdown Menu in Python

18000 lines of code!

What next for Portsdown?

- Migrate Portsdown to Buster on RPi3
- Update to F5OEO's latest Code
- Use the custom Lime DVB Firmware
- Turn this matrix green

LimeSDR Mini with Portsdown

SR	FEC	Pi Cam	EasyCap	Test Card	TCAnim	C920 Webcam
1000	1/4					
	1/2					
	3/4					
	9/10					
500	1/4					
	1/2					
	3/4					
	9/10					
333	1/4					
	1/2					
	3/4					
	9/10					
250	1/4					
	1/2					
	3/4					
	9/10					

What next for Portsdown?

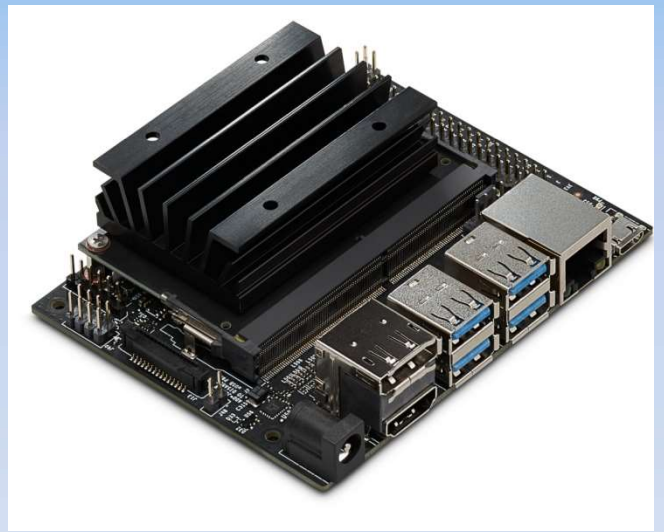
- Migrate Portsdown to Buster on RPi3
- Update to F5OEO's latest Code
- Use the custom Lime DVB Firmware
- Turn this matrix green
- Repeater TX solution
  - Stable DVB-S2 QPSK 1MS FEC 2/3
  - Bandwidth efficient
  - Compatible with Sat RX

Beyond Portsdown as we know it

- QO-100 has driven the need to reduce bandwidth (less power required)
- H265 is the next video encoding standard
- RPi3 can't handle H265. RPi4 can decode ONLY
- Off-board encoding:
  - Jetson Nano
  - PC CPU or Graphics Cards
  - HDMI to H265 Converters

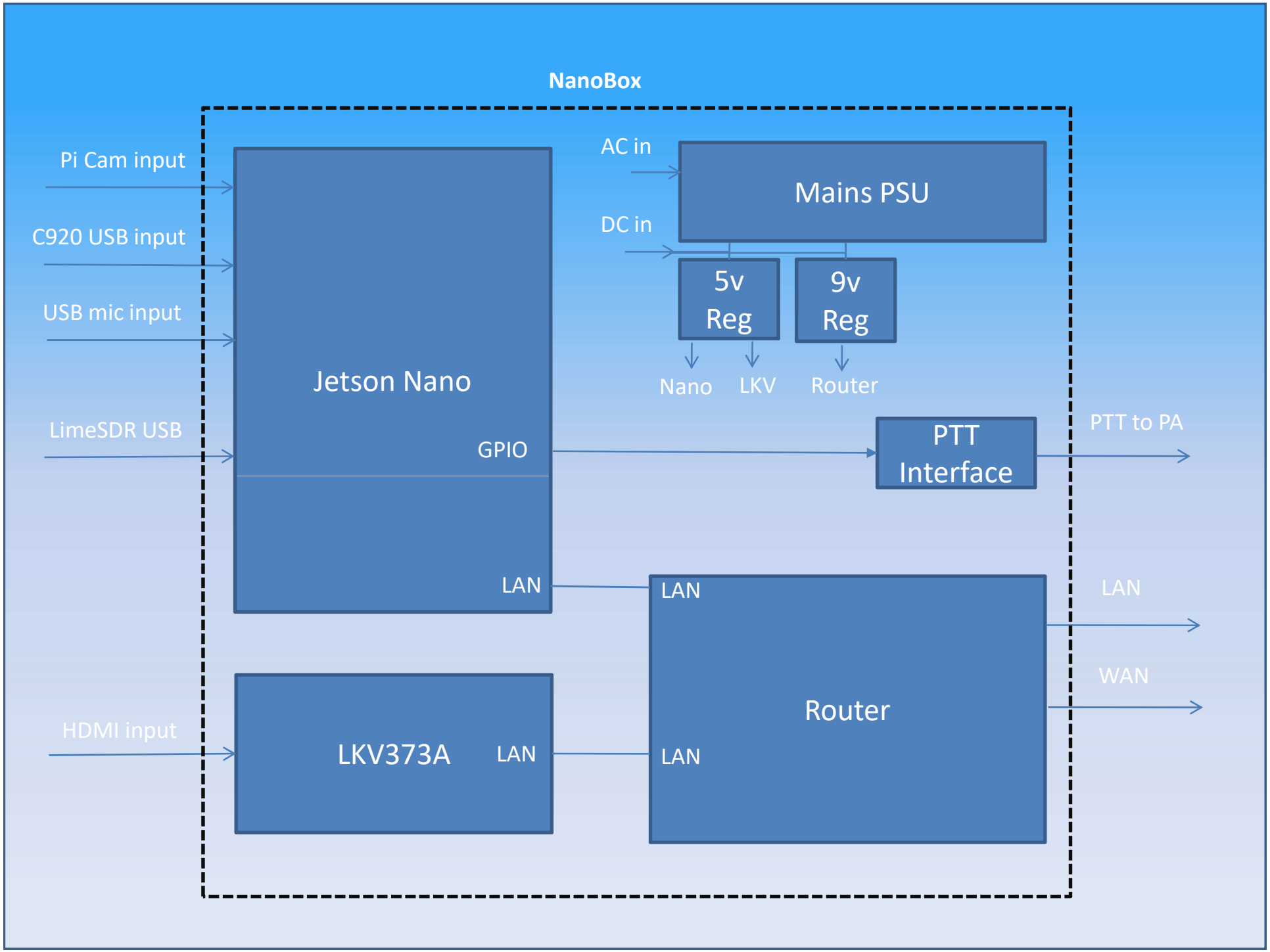
Jetson Nano

- Similar to a Raspberry Pi, but
- NVIDIA H264 and H265 graphics engines
- Good at low SRs
- Input from Pi Cam or LKV373A
- £100



Jetson Nano

- Some support in current Portsdown build
- Better support and write-up in next CQ-TV
- Requires its own network with LKV373A
- Hence the NanoBox


NanoBox
Pi Cam input
C920 USB input
USB mic input
LimeSDR USB
HDMI input
Jetson Nano
GPIO
LAN
LKV373A
LAN
AC in
DC in
Mains PSU
5v Reg
9v Reg
Nano
LKV
Router
PTT Interface
PTT to PA
LAN
LAN
Router
LAN
WAN

PC-based H265 Encoding

- Some NVIDIA graphics cards can encode
- Powerful PCs can also do it in the CPU
- Very hardware-specific and not cheap

Stand-alone H265 Encoding

- Stand-alone H265 encoders available on eBay
- About £65
- Future Support?

So, What Next?

- A solution based on the Jetson?
- Controlled by an existing Portsdown?
- Exact architecture to be decided
- Priorities:
  - Simplicity
  - Cost
  - Continued availability
  - Future software support
  - Backward Compatibility

Available Today

- Portsdown and MiniTiouner Test and Fix-it
- Development Portsdown Repeater Black Box
- Jetson Demo
- As much advice as we have
- Full BATC Shop stock

Questions?