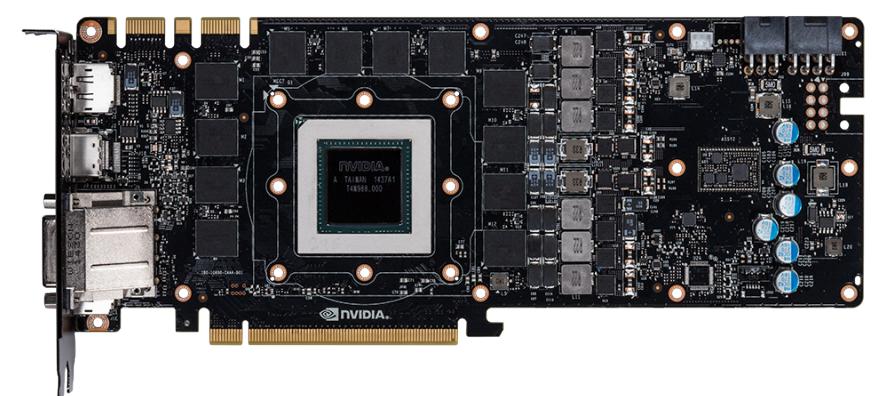


G4GUO DVB-S2/S2X

SDR-Based Demodulator

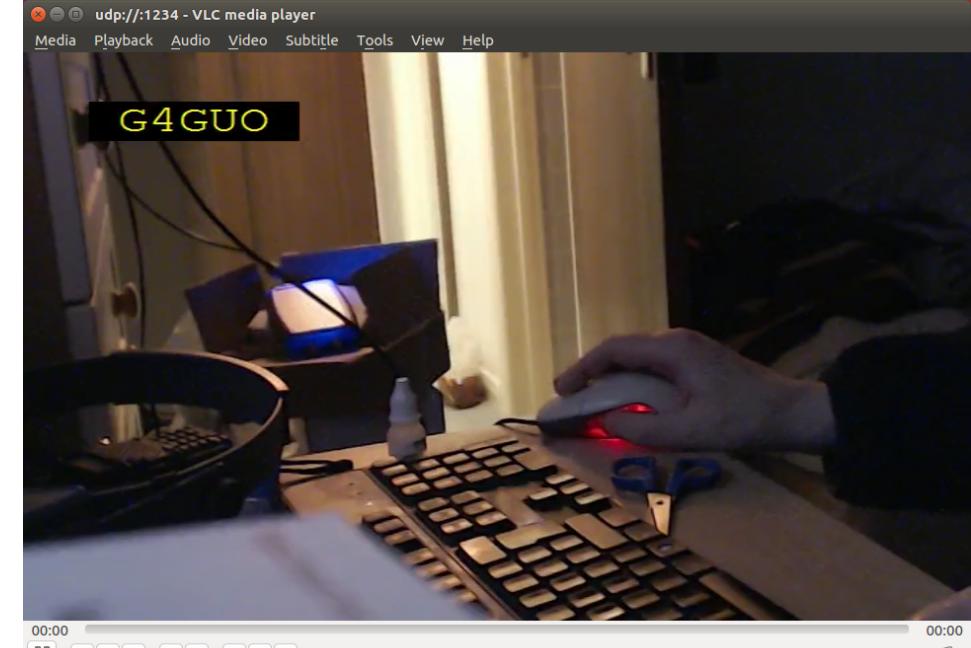
for Space Communications

Accelerated by Nvidia GTX 980 Ti



Reasons for project

- 1) Can be optimised for special applications
- 2) No need for an NDA to use it
- 3) Uses readily available hardware
- 4) An exercise in self learning
- 5) Encourage others to investigate use of GPUs
- 6) Architecture not limited to DVB-S2



Current Status

Demodulator will decode rates of up to 1 Mbit/s of the more common parts of the DVB-S2 standard. Supports ADALM-PlutoSDR and basic support for LimeSDR.

Future work

Move LDPC Bitnode and Checknode mapping tables into Texture memory, Texture memory is cached read only memory which has low latency if memory fetches are located close to one another in 2D space.

Process multiple frames in parallel, this allows better memory coalescing of bit and check node metrics. Due to the low density nature of LDPC codes efficient memory access is difficult.

Reduce size of metrics, currently 32 bits to further improve memory access performance.

Speed up BCH processing using lookup tables for initial error checking and multiple CPU threads for correction of frames with errors.