

# SRI High Speed Radio

Kyle Leveque, John Buonocore  
SRI International

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# Motivation

- How to increase scientific data returns from CubeSats?
- Experiences with RAX mission
  - SRI Science PI and west coast ground station
- Allen Telescope Array (ATA) underutilized
- Get a radio in the hands of many CubeSat developers that can better utilize the ATA

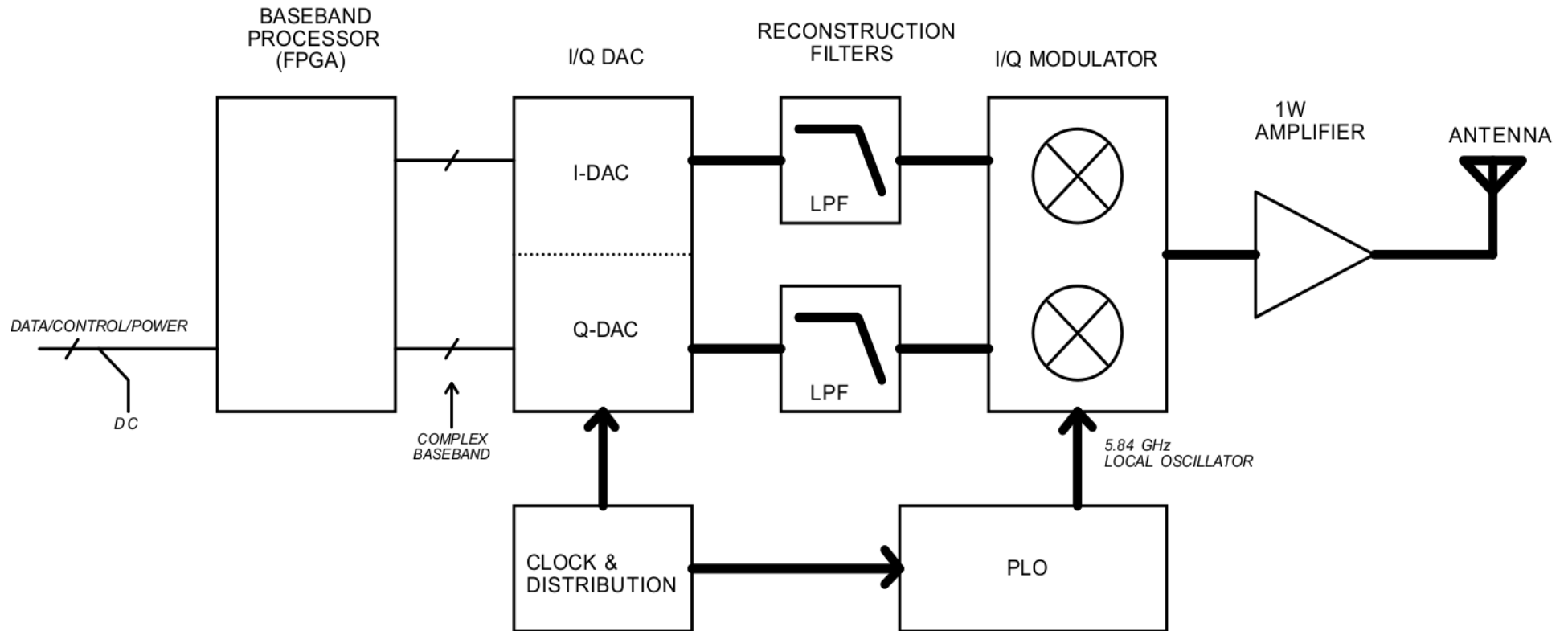
# Radio Approach

- Targeting C-band
  - 4 GHz – 6 GHz
- Software defined transmitter
- Developing two modes
  - 1) High speed mode (5Mbps) – stretch of 10 Mbps
  - 2) Low speed mode (50 kbps)

# License Overview

5650-5725 MOBILE except aeronautical mobile 5.446A 5.450A RADIOLOCATION Amateur Space research (deep space) 5.282 5.451 5.453 5.454 5.455			5650-5925 RADIOLOCATION G2	5650-5830 Amateur	RF Devices (15) ISM Equipment (18) Amateur Radio (97)
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5.150	5.150	5.150	5.150 US245	5.150	

# Block Diagram



# Preliminary Interfaces

- Data input
  - SPI at up to 10 Mbps, 3.3V
- Power input
  - 3V to 12V
  - 5W – 7W active transmit
  - 1W – 2W standby
- Volume
  - 2cm x 8cm x 8cm

# Modulations / Protocols

- What modulations/protocols to initially implement?
- Currently planning for:
  - QPSK
  - IP/UDP
  - Layer 2 ??
- Considering
  - Asynchronous CDMA

# Status

- All parts procured and undergoing evaluation
- Prototype board this fall
  - CubeSat fit and function
- Looking for partners that would be willing to fly on their CubeSat mission



# Thank You

- Kyle Leveque
  - [Kyle.leveque@sri.com](mailto:Kyle.leveque@sri.com)
- John Buonocore
  - John.buonocore@sri.com