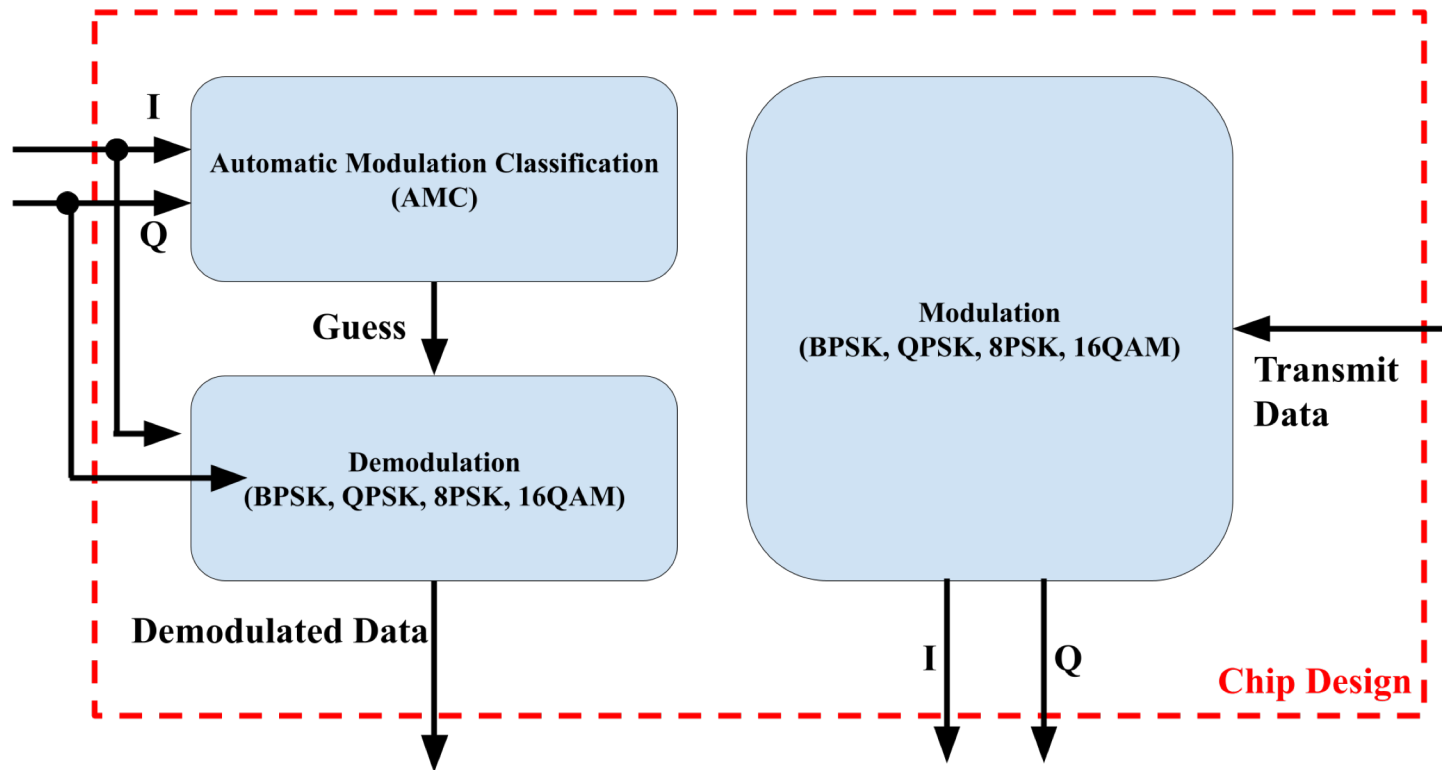


# Software-Defined Radio System Hardware Acceleration

Team member: Rain (YuQin Zhao), Aisha Baloch, Ved Viyas

# Original Thought



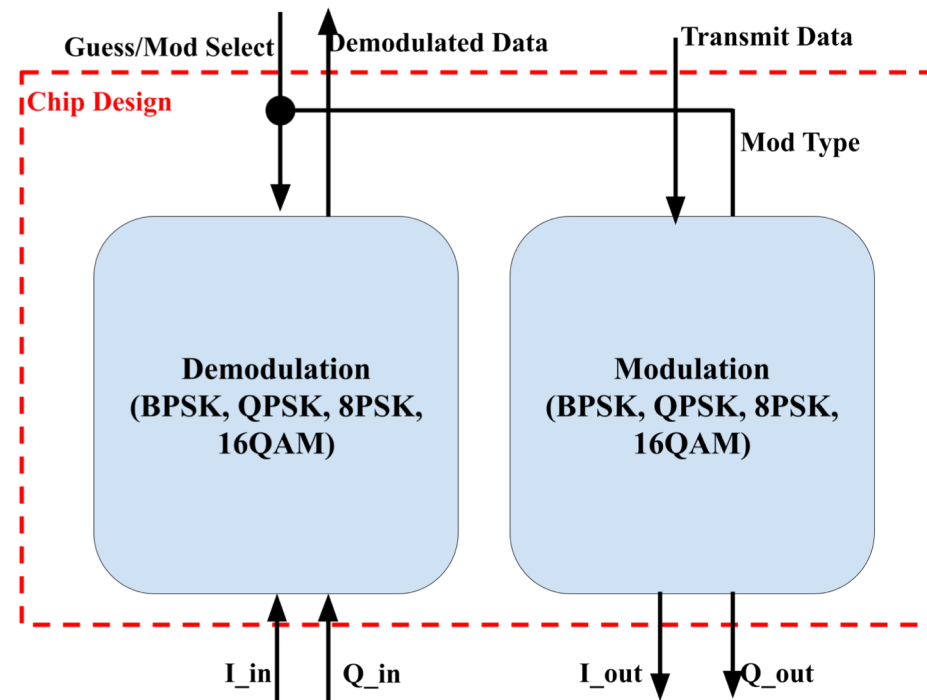
# What we have done

- BPSK Modulation & Demodulation
- QPSK Modulation & Demodulation
- 8PSK Modulation & Demodulation
- 16QAM Modulation & Demodulation
- Sparsity from 9 64x64 matrices calculation to 56 4x4 matrix calculation (saved 99.85% calculation)
- Adder Tree-Based MAC 4x4 (Main core of AMC)
- I/Q Data Preprocessing and Matrix Generation for AMC

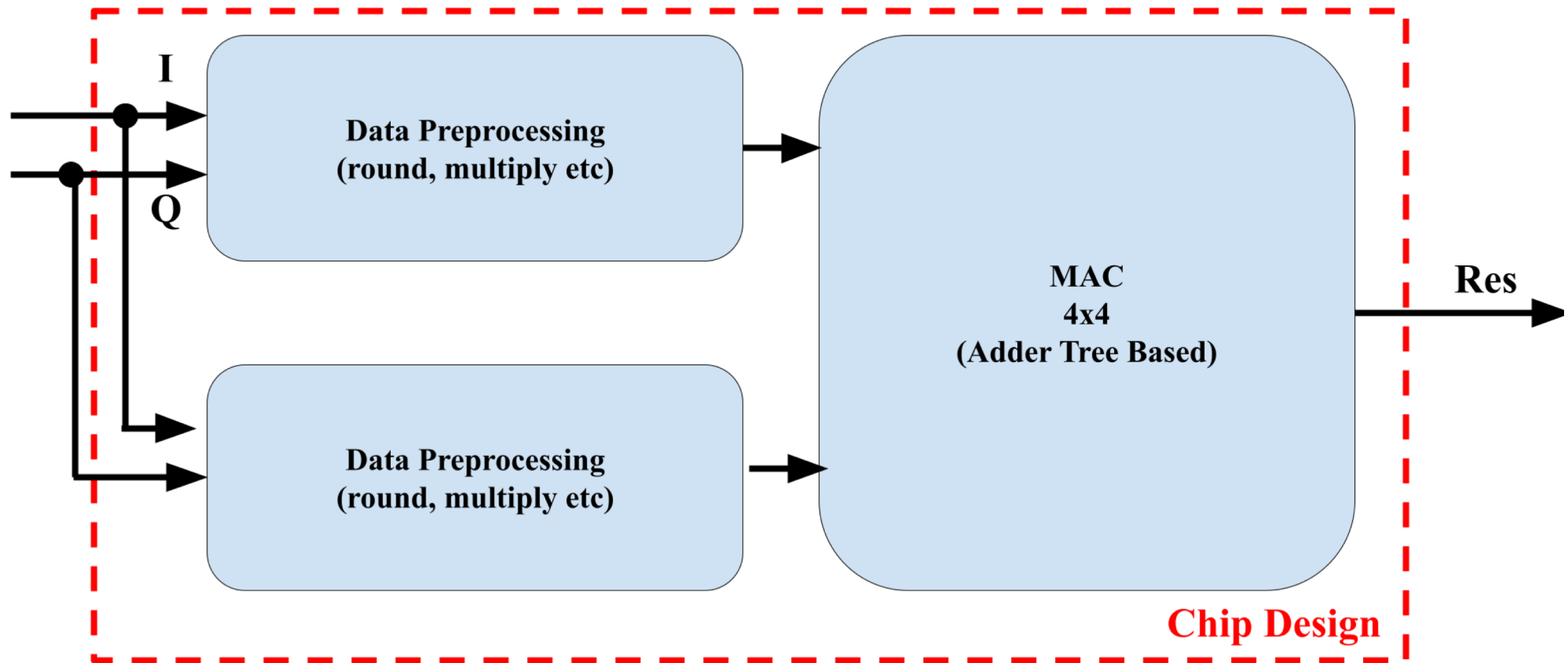
# What we have compromised

- Not enough number of pins to provide high resolution I/Q
- Matrix sparsity has been done dramatically but need time to store the data

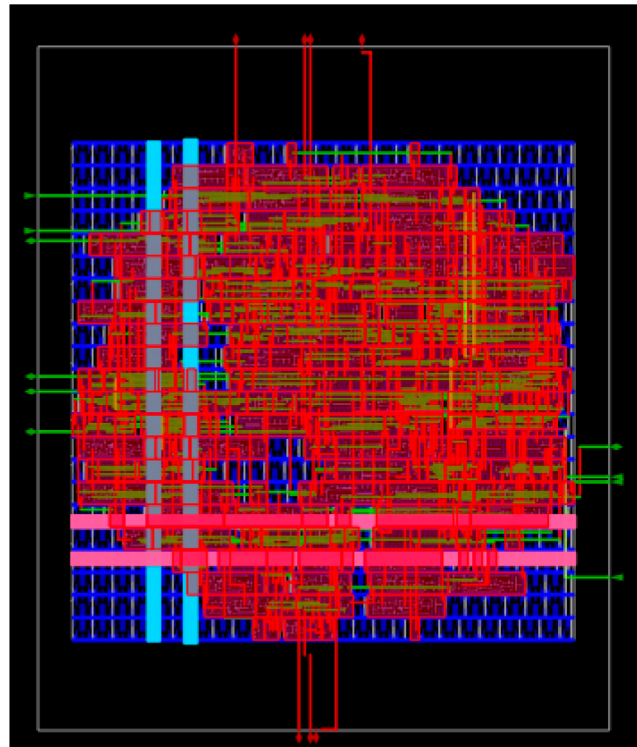
What we have now 1 (communication sys)



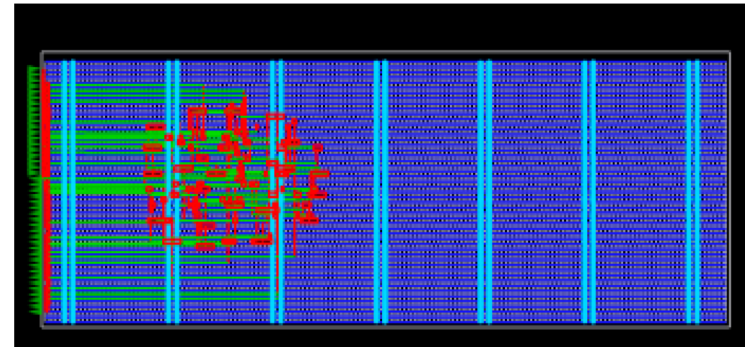
What we have now 2 (CAMC core module)



# Layout of Communication System

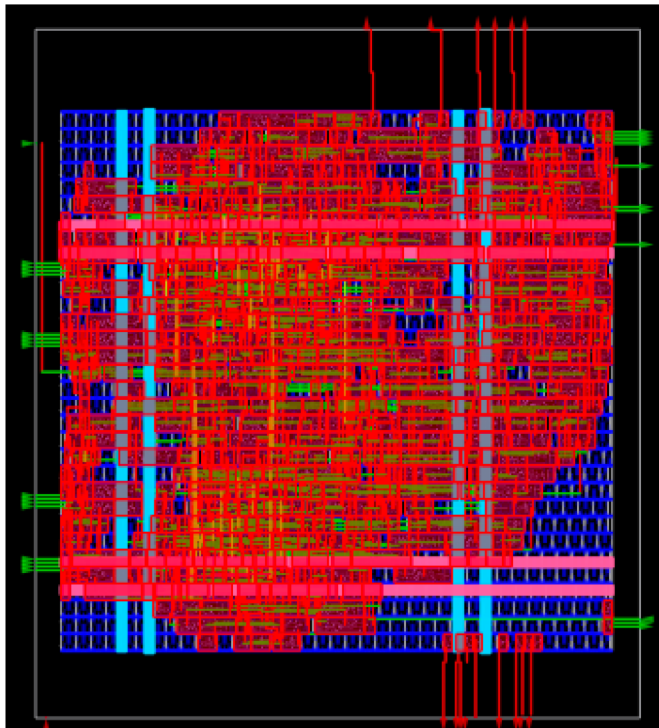


Workshop Version

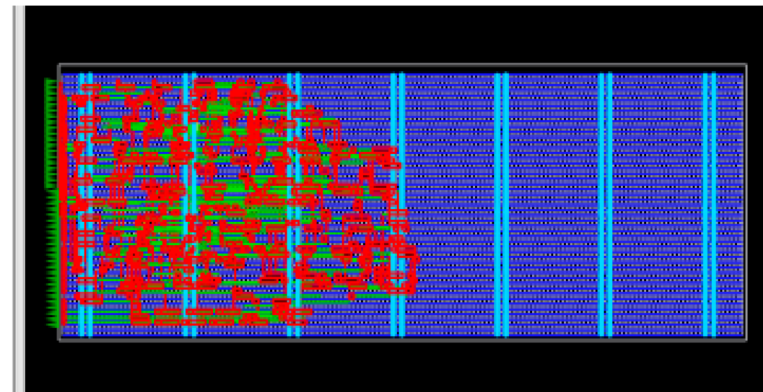


Template Version

# Layout of Data Preprocessing + MAC (core of AMC)



Workshop Version



Template Version