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Mixerless RFSoc Microwave Signal Generation for Superconducting Circuit Applications

In the realm of quantum computing and low-temperature detectors, precise signal conditioning is crucial for the effective readout and control of superconducting qubits and sensors. As these technologies evolve, the need for increasingly sophisticated and integrated systems becomes more apparent. This contribution presents the design of a mixer-less analog front-end board optimized for superconducting circuit interfacing. It leverages the capabilities of the Radio-Frequency System-on-Chip (RFSoc) from AMD Xilinx and utilizes software-selectable channel filtering stages, ultimately achieving wide-band signals without analog local oscillator leakage.

Speed talk:

I am unwilling/unable to present a speed talk

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