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**Strong Coupling of a Scannable Transmon to a Coplanar Waveguide Resonator** WILL SHANKS, DEVIN UNDERWOOD, JAMES RAFTERY, ANDREW HOUCK, Princeton Unversity — We report measurements of the coupling between a superconducting microwave resonator and a transmon qubit fabricated on a separate chip and mounted to a three-dimensional cryogenic translation stage. The qubit-resonator system reached the strong coupling regime with a coupling strength in excess of 180 MHz, while qubit and resonator linewidths were roughly 0.4 and 10 MHz respectively. We map out the coupling strength in the plane of the resonator and find good agreement with finite element simulation. Such a scannable qubit could be used as a part of a local probe of a large array of microwave cavities and superconducting qubits.

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