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Circuit quantum electrodynamics with a scanning qubit WILL SHANKS, DEVIN UNDERWOOD, JAMES RAFTERY, SRIKANTH SRINIVASAN, ANTHONY HOFFMAN, ANDREW HOUCK, Princeton University — 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 80 MHz. We use the translation stage to explore the position dependence of the coupling strength. With a scanning qubit stage, it is possible to measure many qubits in succession and study the statistics of the fabrication process. The system can also be used as a local probe of a large array of microwave cavities and superconducting qubits.

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