Improved neutralized compression and focusing of an intense ion beam using a final focus solenoid J.E. COLEMAN, P.A. SEIDL, J.A. DUERSCH, D. OGATA, P.K. ROY, K. VAN DEN BOGERT, LBNL, Berkeley, CA 94720, USA, A.B. SEFKOW, E.P. GILSON, PPPL, New Jersey 08543, USA, D.R. WELCH, Voss Scientific, Albuquerque, NM 87108, USA — Future target heating experiments with space-charge dominated ion beams require simultaneous longitudinal bunching and transverse focusing. We present an experiment to simultaneously focus a singly charged potassium ion beam at LBNL. The space charge of the beam must be neutralized so only emittance limits the focused beam intensity. An induction bunching module provides a head-to-tail velocity ramp upstream of a neutralizing plasma column and a final focusing solenoid. The beam parameters are tuned with a four-solenoid lattice to transport the neutralized compressing beam into a final focus solenoid which transversely focuses the beam at the target plane. We have improved the axial focus (> 100x axial compression, < 2 ns pulses) and reduced the beam spot size. A comparison of experimental and modeling results are presented. (This work was supported by the U.S. D.O.E. under DE-AC02-05H11231 and DE-AC02-76CH3073 for HIFS-VNL)