Dedicated breast computed tomography (CT) systems were designed and fabricated in our laboratory, and patient scanning commenced in November 2004. The breast CT scanner was designed utilizing several off-the-shelf components, including the x-ray system, the flat-panel detector, and a position encoder/bearing/motor system. These components were integrated into a custom designed scanner frame and gantry. The breast CT scanners were designed for 33 second acquisition, utilizing 500 projection images acquired over 360° around the breast. The breast CT scanner uses 80 kVp and mAs levels adjusted to the size of the woman's breast. The radiation levels are adjusted such that the mean glandular dose is equal to that of two-view mammography for each woman. The acquisition protocols requires patient breath hold during the 17 second scan. As of May 2008, 150 patients have been scanned, including healthy volunteers (phase 1) and BIRADS 4 and 5 patients who were suspicious for having breast cancer (phase 2). Of the patients imaged, >20 were imaged with and without contrast agent injection. While our clinical evaluation of breast CT technology is still under way, initial evaluation indicates that high-quality tomographic images of the breast can be achieved at dose levels comparable to two view mammography. The ultimate utility of breast CT may include breast cancer screening, or for diagnostic studies as part of a comprehensive diagnostic breast examination. The breast CT platform also appears ideal for robotically controlled biopsy and other interventional procedures.