A fourth-order 1-bit continuous-time delta-sigma modulator designed in a 65 nm process for portable ultrasound scanners is presented in this paper. The loop filter consists of RC integrators, with programmable capacitor arrays and resistors, and the quantizer is implemented with a high-speed clocked comparator and a pull-down clocked latch. The feedback signal is generated with voltage DACs based on transmission gates. Using this implementation, a small and low-power solution required for portable ultrasound scanner applications is achieved. The modulator has a bandwidth of 10 MHz with an oversampling ratio of 16 leading to an operating frequency of 320 MHz. The design occupies an area of 0.0175 mm² and achieves a SNR of 45 dB consuming 489 µA at a supply voltage of 1.2 V; the resulting FoM is 197 fJ/conversion. The results are based on simulations with extracted parasitics including process and mismatch variations.