This paper presents the first active power combiner designed for ultrawideband applications covering a bandwidth of operation from 1 to 220 GHz. The circuit is implemented in a high-performance 0.13-μm SiGe BiCMOS technology (f_{max} = 450 GHz) and based on an innovative dual-stage distributed architecture. The input stage realizes the power combination with a traveling-wave architecture. The output stage is a cascaded single-stage distributed amplifier, and it is employed to increase the overall gain. The circuit analysis necessary for circuit design is given, and its predictions are compared with the measurements in the time and frequency domains. The system requires 203 mW of dc power to provide a signal amplification of 20 dB from 1 to 170 GHz, which decreases to 15 dB at 220 GHz. Independent bias networks for the combining paths also enable a gain tuning range of 20 dB. The presented circuit improves by a factor 16 the state of the art for frequency of operation of distributed power combiners implemented in silicon and by a factor 20 the bandwidth. Compared with III-V implementations, the improvement factors are 4.5 and 5.5, respectively.