165Er is in the deformed region, and follows the decay of165Tm by more than 100 transitions. The multipole mixing ratios of these transitions are measured by the γ-γ(θ) directional correlation method. In eight different experiments about 20 gamma-rays were investigated, and it is shown that: excepting the 47 keV, the transitions which are predominantly E1 have large M2 mixing, and excepting the 806 keV, the transitions which are predominantly M1 have large E2 mixing. The 77 keV transition is pure E2 and the 460 keV transition might have an M3 component. Excepting the 196 keV transition the E2/M1 mixing ratios are positive for the gamma-rays connecting the levels which have equal spins, otherwise they are negative. There are two 564 keV transitions, the spin of the 608 keV level is 3/2, and the 590 keV level has spin 1/2 or 3/2. © 1988 Società Italiana di Fisica.