We present results of relativistic spin- (LSDA) and orbital- (OP) polarized band structure calculations for orthorhombic UPdGe performed by the FPLO code [1]. Previous bulk experiments showed that this compound exhibits two phase transitions, at \( T_C = 30 \text{ K} \) to ferromagnetic (FM) and at \( T_N = 50 \text{ K} \) to amplitude-modulated antiferromagnetic states. Interestingly, a giant transverse magnetoresistivity value of -73% was found exactly at \( T_C \) and at \( B = 8 \text{ T} \) for a polycrystalline sample [2]. Our calculated magnetic moment in the FM ground state (LSDA+OP) is in good agreement with the experimental one, concerning both its value of 1.5 B.M./U at. and orientation in a simple collinear magnetic structure along the \( b \) axis [3]. The calculated density of states (DOS), in this FM state, resembles that in halfmetals while non-magnetic (LDA) DOS is semimetallic-like. The computed Fermi surface (FS) in the FM state is typically metallic, containing four electron and hole FS sheets, whereas the non-magnetic FS is semimetallic-like (with reduced FS sheets). This is in accord with our transport measurements indicating a Kondo-like behavior of UPdGe at temperatures \( T > T_N \).