Methane is exceptional in its solid-phase orientational disorder that persists down to 24 K. Only below that temperature does the structure become partially ordered, and full crystallinity requires even lower temperatures and high pressures. Not surprisingly, methane appears to freely rotate in most van der Waals complexes, although two notable exceptions are CH$_4$-HF and CH$_4$-C$_5$H$_5$N. Of interest to us is how alkane interactions affect the methane rotation. Except for CH$_4$-CH$_4$, rotationally-resolved spectra of alkane-alkane complexes have not been studied. To fill this void, we present the microwave spectrum of CH$_4$-C$_3$H$_8$ which is the smallest alkane complex with a practical dipole moment. The microwave spectrum of CH$_4$-C$_3$H$_8$ was measured using the Fourier Transform microwave spectrometer at Wesleyan University. In the region between 7100 and 25300 MHz, we observed approximately 70 transitions that could plausibly be attributed to the CH$_4$-C$_3$H$_8$ complex (requiring high power and the proper mixture of gases). Of these, 16 were assigned to the A-state (lowest internal rotor state of methane) and four to the F-state. The A-state transitions were fitted with a Watson Hamiltonian using nine spectroscopic constants of which $A = 7553.8144(97)$ MHz, $B = 2483.9183(35)$ MHz, and $C = 2041.8630(21)$ MHz. The rotational constant is only 1.5 MHz higher than that of Ar-C$_3$H$_8$ and, since the a-axis of the complex passes approximately through the centers of mass of the subunits, this indicates a similar relative orientation. Thus, we find that the CH$_4$ is located above the plane of the propane. The center-of-mass separation of the subunits in CH$_4$-C$_3$H$_8$ is calculated to be 3.993 Å, 0.16 Å longer than the Ar-C$_3$H$_8$ distance of 3.825 Å, a reasonable difference considering the larger van der Waals radius of CH$_4$. The four F-state lines, which were about twice as strong as the A-state lines, could be fitted to $A$, $B$, and $C$ rotational constants, and further analysis is in progress.