Superconductivity in the new Platinum Germanides $\text{APt}_4\text{Ge}_{12}$ ($\text{A=Sr,Ba,La,Pr}$) HELGE ROSNER, ROMAN GUMENIUK, WALTER SCHNELLE, MICHAEL NICKLAS, ANDREAS LEITHE-JASPER, YURI GRIN, Max-Planck-Institute for Chemical Physics of Solids Dresden, Germany — New germanium-platinum compounds with the filled-skutterudite crystal structure were synthesized. Magnetic susceptibility, specific heat, and electrical resistivity measurements find superconductivity in LaPt$_4$Ge$_{12}$ and PrPt$_4$Ge$_{12}$ below ca. 8 K. The parameters of the normal and superconducting states were established. Strong electron-phonon coupling and a crystal electric field singlet groundstate is found for the Pr compound. Electronic structure calculations show a large density of states at the Fermi level, predominantly due to Ge 4p orbitals. Similar behavior, albeit with lower $T_c$, was observed for SrPt$_4$Ge$_{12}$ and BaPt$_4$Ge$_{12}$.