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As part of the Nobeyama Planck Project, we present the results of a single-pointing survey of 207 SCUBA-2 cores embedded in Planck Galactic Cold Clumps distributed in different environments. This survey is to identify the dense cores on the verge of star formation for study of the initial condition of star formation whose details are not well characterized yet. We observed our targets with the Nobeyama 45-m telescope in N_2D^+, N_2H^+, DNC, $HN^{13}C$, c-C_3H_2, CCS, and HC_3N lines. We investigated the physical and chemical properties of the cores and found that the SCUBA-2 cores have a small fraction ($\sim 20\%$) of starless cores and the low detection rate of early-type molecules and the high detection rate of late-type molecules, which suggests that most SCUBA-2 cores are highly evolved. Adding samples in the literature, we revised the Chemical Evolutionary Factor as an indicator for the chemical evolutionary degree of a dense core, and then identified the 13 potential candidates (five in Orion, two in filamentary clouds, and three at high Galactic latitudes, one low-mass core, and two PGCCs) of the dense cores on the verge of star formation, which will be ideal targets for understanding of the initial condition of star formation in widely different environments. We also found that, as the cores have higher deuterium fraction and/or higher early-type molecule depletion toward the beginning of gravitational collapse, they have broader linewidths, colder temperatures, and higher column densities, suggesting that turbulence dissipation in dense region of the dense core may not be an essential ingredient for the onset of star formation.