The first results of silicon microphones that are completely batch-packaged and integrated with signal conditioning circuitry in a chip stack are discussed. The chip stack is designed to be directly mounted into a system, such as a hearing instrument, without further single-chip handling or wire bonding. The devices are fully encapsulated and provided with a well-determined interface to the environment. The integrated microphones operate at a bias of 1.5 V and are expected to reach a sensitivity of 5 mV/Pa, an A-weighted equivalent input noise of 24 dB sound pressure level, and a power consumption of about 50 μW in the near future, thereby living up to the tight specifications of microphones for hearing instruments. Other potential applications include mobile phones, headsets, and wearable computers, in which space is constrained.