The diagrams illustrate the speedup of two applications, `advect3d` and `iceadvect`, compared to running on a single core. The graphs show the speedup for different numbers of cores, with line types and markers indicating different types of data processing, such as `1block`, `hilbert2d`, `hilbert3d`, and `linear acceleration`. The x-axis represents the number of cores, while the y-axis shows the speedup compared to running on 1 core.