

will tend to fall short, since they'll burn more power in accomplishing tasks for which they're not optimized.

Choosing the proper battery system for the application is also key—for energy density considerations, as well as for the weight of the end product, time between recharges, and even safety concerns.

Does my Application Require a Fixed-Point or Floating-Point Device?

Processor computation arithmetic is divided into two broad categories: fixed-point and floating-point. In general, the cutting-edge fixed-point families tend to be faster, more power-conscious and cost-sensitive, while floating-point processors offer high precision at a wide dynamic range. *Dynamic range* refers to the ratio between the largest and smallest numbers that can be represented in a numeric format, whereas *precision* refers to the granularity with which a fraction can be defined.

As illustrated in Figure 1.3, designers whose applications require only a small amount of floating-point functionality are caught in a “gray zone,” often forced to move to higher-cost floating-point devices. Today, however, some fixed-point processors

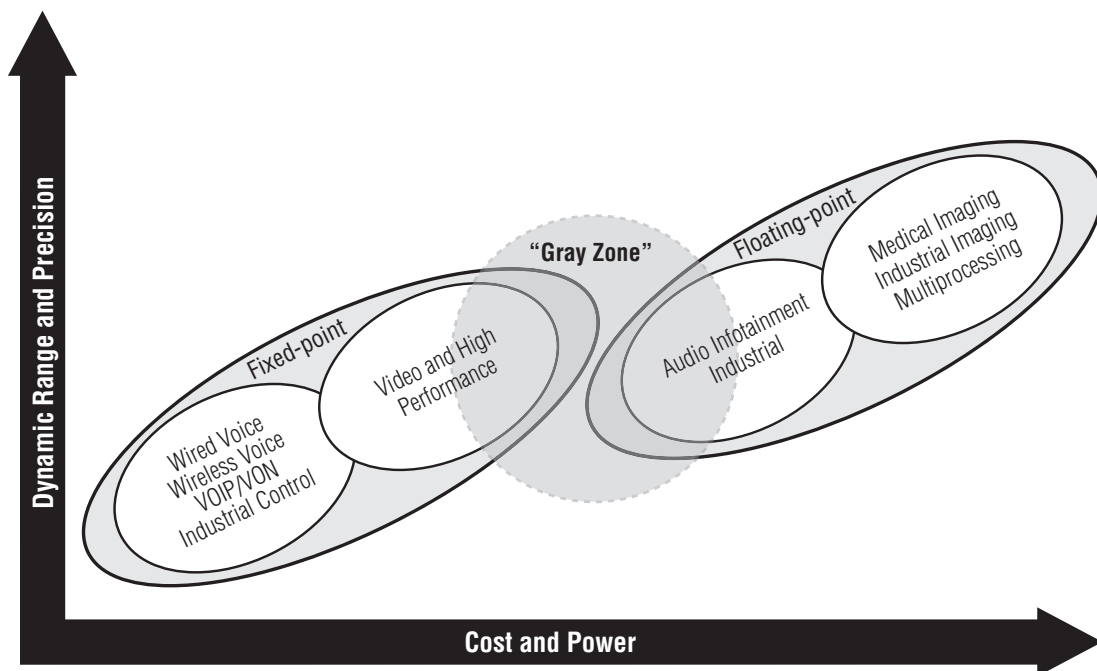


Figure 1.3 The choice between a fixed-point and floating-point processor isn't always clear