

Filter Coefficient Scaling Factor

The LTC2512-24 supports 4 different down-sampling factors. The filter coefficients and the frequency response plots for the 4 filters are available via this download. Filter coefficients may be scaled to unity at DC, i.e. the sum of coefficients is equal to 1. Unity gain at DC is achieved by dividing the filter coefficients by the scaling factor. Scaling factor for the digital filters is equal to the sum of the filter coefficients. Table 1 lists the filter lengths and scaling factors for different DF values.

| Down-sampling Factor (DF) | Filter Length | Filter Scaling Factor |
|---------------------------|---------------|-----------------------|
| 4 | 140 | 1,320,769 |
| 8 | 280 | 21,219,876 |
| 16 | 560 | 337,304,660 |
| 32 | 1,120 | 5,413,053,946 |

Table 1. Filter length and scaling factor for different DF's