

tn0118

PD1 Q/A

1. The maximum number of taps per MONO DSP is 480 for static operation, and 255 for dynamic operation, depending on the sampling rate. It can always be less, but not more. If you send more than allowed number of taps to DSPs, DSPs will make use of all the taps, and produce clicks and even stall. You can load statically before going dynamic (and number of taps should be limited by dynamic operation), the only difference is at the PD1go instance DSPs will have non-zero or zero coefficients.

2. Call PD1ResetDSP at beginning

While using PreLoadRaw from STACK. When coefficients are load using PreLoadRaw, it is very important to limit the coefficient values less than 1.0 for FILE_A, FILE_F, STACK, DAMA_F, and less than 32760 for others

3. When the TRIG input is low (not floating high), PD1go (or similar for other devices) will not actually start (PD1) conversion until TRIG is high. This is for the use of an external trigger. Since PD1fixbug(DIN) pre-record two buffers to fix the A/D channel ordering problem, it requires a high TRIG line to run. However, this causes problem in your application. My suggestion is, when you use only D/As, you do not need to use PD1fixbug(DIN), and when you use both D/A and A/D, you can program your trigger to do a very short two-channel record only once to fix this problem, and you can even write several lines of your code similar to this PD1fixbug (see PD1fixbug in PD1_SUP.C).

4. When you use tone() command to generate a buffer and play it back over and over again, you will have a click every time, since when tone() calculates every signal points, truncation error in floating-point calculation will accumulate and cause audible click. In this case, an inverse FFT should be used to generate all the points. The trade-off is, with inverse FFT, SINE frequency allocation accuracy is limited by sampling rate and number of points in FFT (such as you get 980 Hz for a desired 1000Hz).

5. I have checked nrm_nois example and did not think the instantaneous noise amplitude can be larger than 10V (32767/-32768), since the signal generated will be always saved to a 16-bit DAMA buffer. The cause may be the reserved numbers for PD1, since PD1 will take any number greater than 32760 as a pre-defined symbol and respond accordingly. When using PD1, it is very important to scale signal properly, especially when Gaussian noise is used.

6. POWER DAC and POWER SDAC are the same thing. Changing DAC to SDAC is just for emphasizing 3-D application (spatial), which may not make a good sense to everyone. Sorry for the confusion.

