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Telemetry Dynamic Simulator (TDSIM)

Shared Memory Applications

There are times when you just want to simulate data that just doesn't fit into a generic simulator. It's too complex or is a one of a kind, highly specialized function. The TdSim has user hooks to allow users to write their own application (or have us do it), and that application can interface with the TdSim application to process the data.

See the drawing TdSim_DynaSim Major Frame Process Overview. There are two places where an external application has access to the major frame buffer, built into the TdSim application. (See the WdAlg Function document for other ways to do this as well).

- Initial Values – The external application initializes the major frame values how it sees fit.
- Post WdAlg – The external application adjusts the major frame values after the other processing has completed, however it sees fit.

These external applications can get complex, or be fairly simple. They can do all the work, or let the TdSim application assist with the work. It is up to the architect.

The key here, however, is knowing what kind of shared memory the external application is using, Initial or Post. You have to know which button(s) to press on the Main Setup – Frame Process section. It is up to the author of the external application to let you know which method it has chosen to talk with the TdSim application (it could be both methods as well). *For external applications written by Lumistar, the title bar of that application will have either “(Initial)” or “(Post)” in it, just to remind users.*

Examples

A couple example external shared memory applications are distributed with the TdSim system. These can give you an example of the power you are given to customize the simulator however you wish.

- TdSim_Ch10_BitReader – This is an Initial Values shared memory application. This will read a chapter 10 file and feed it to the TdSim application without having to preprocess the file. **NOTE. Your PCM frame setup on the Ch10 bit reader application and the TdSim application MUST BE THE SAME.**

- TdSim_ParameterFader – This is a Post WdAlg Values shared memory application. This is similar to the Manual Word Fader window in the TdSim application, but it allows you to work with parameters, and allows you to adjust the values coming in by x amount if you wish.

- TdSim_FlightSim – This is a Post WdAlg Values shared memory application. This is one hairy application that is a flight simulator, you fly with a joystick, throttle controls, etc. It also collects video from a web camera. From there, it sticks the data into the PCM stream.

ONLY ONE

For each stream, there is only 1 Initial Values shared memory interface, and there is only 1 Post WdAlg shared memory interface. Both can be used by the same application if that is what the architect wants. The architect can also get tricky if he wishes and use a WdAlg Function to further interact between the Initial and Post events.

It's up to your imagination now.