Simulink Embedded Target

Introduction

The MATLAB link to Code Composer Studio (CCS) is the first layer in allowing MATLAB to communicate with CCS. A second product, known as the Embedded Target for the TI TMS320C6000 DSP Platform, interfaces through MATLAB Simulink™ and Real-Time Workshop (RTW), to allow block diagrams created in Simulink to be exported and downloaded directly to the 6711 and 6713 DSK’s.

- RTW is responsible for generating ANSI C from a Simulink block diagram
- The CCS link allows MATLAB to communicate with Code Composer, and create a CCS project that upon code build produces an .out file that can be downloaded and run on a DSK target

For this course, using cut-and-paste Simulink blocks to create real-time DSP applications, would defeat the detailed learning experience this course is all about. Still, being aware of options such as this for rapid prototyping may be of value in future work experiences.
The Toolbox

There are many blockset libraries available for Simulink. Of particular interest here are:

- C6000 Target
- DSP blockset
- Fixed-point block set

C6000 Target Blocks
DSP Blockset
Fixed-point Blockset

![Simulink Library Browser with Fixed-Point Blockset and Examples]

Examples

A variety of examples come with the Simulink C6000 Target blockset. A automatic gain control example for the C6713 DSK is shown below.
**Automatic Gain Control**

**C6713 DSK**

**How to use this demo:**

Type Ctrl-B to build using default settings, or double-click "Model Settings" to change model parameters before typing Ctrl-B.

When the generated code has been compiled and linked, double-click "Run" to execute the code and initiate the RTDX transfers.

Click "Info" for a full description of the algorithm and detailed instructions.
AGC Detail