

Generating C code from control schematic with the click of a button

The SimCoder Module provides the capability to generate C code automatically from the control schematic.

In many applications, control algorithms are implemented in microcontrollers/DSPs. Engineers are faced with the task of translating a control schematic into C code. This requires engineers with good programming skills. Also, since hand written code is prone to bugs and human errors, extensive testing is required.

Automatic code generation, on the other hand, offers significant advantages over hand code writing. After the control algorithm is verified in a simulation, the C code is generated automatically with

the click of a button, greatly reducing the time of code development. Also, since the code is generated automatically, it is consistent in quality, and is less prone to errors.

Furthermore, together with one of PSIM's hardware targets, SimCoder can generate code that is ready to run on the specific target DSP hardware. The ability to go from control schematic to hardware code generation provides a seamless integration between simulation and hardware implementation, and greatly speeds up the development and design process.

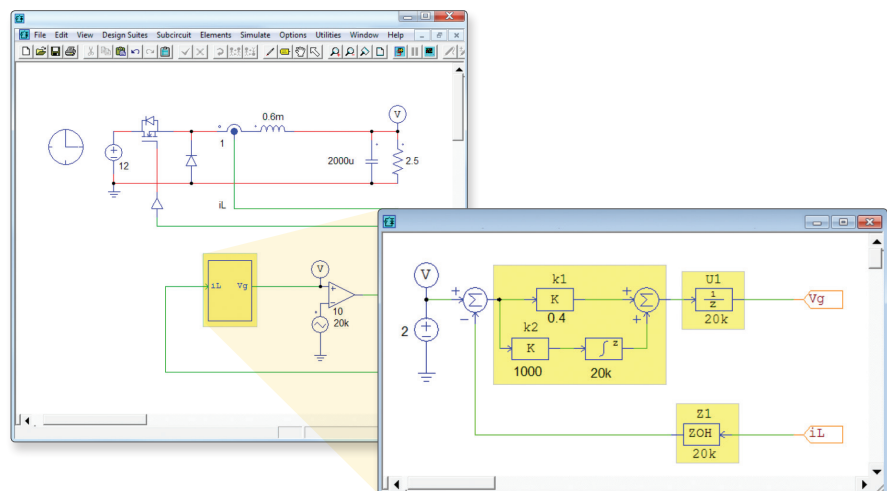
FEATURES & BENEFITS

- ♦ Automatic code generation; no programming skills needed
- ♦ High-quality and consistent code with no human errors
- ♦ Hardware code generation together with hardware targets

```
void TaskS1(DefaultType fn0, DefaultType *fOut0)
{
    DefaultType fS1_VDC2, fS1_Z1, fS1_SUM1, fS1_k1, fS1_k2, fS1_B4, fS1_SUMP
    *fOut0 = fCbIS1_U1;

    fS1_VDC2 = 2;
    fS1_Z1 = fn0;
    fS1_SUM1 = fS1_VDC2 - fS1_Z1;
    fS1_k1 = fS1_SUM1 * 0.4;
    fS1_k2 = fS1_SUM1 * 1000;
    {
        static DefaultType out_A = 0;
        fS1_B4 = out_A + 1.0/20000 * fS1_k2;
        out_A = fS1_B4;
    }
    fS1_SUMP1 = fS1_k1 + fS1_B4;
    fCbIS1_U1 = fS1_SUMP1;
    _seVFS1(fS1_VDC2);
}
```

Above: **Automatically generated C code** for the subcircuit.



Right: **Control circuit** in a subcircuit.