Chapter 15. CG56 Domain

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15.1 Introduction

The CG56 domain generates assembly code for the Motorola 56001 processor. Chapter 13 describes the features common to all code generation domains. The basic principles of writing code generation stars are explained in section 13.2. You will find explanations for codeblocks, macros, and attributes there. This chapter explains features specific to the CG56 domain. Refer to the CG56 chapter in the user manual for an introduction to these domains.

15.2 Data Types

The supported CG56 data types are:

```
int
intarray
fix
fixarray
```

In addition the `complex` data type is partially supported. None of the currently defined stars that take `anytype` input except `Fork`, are compatible with the `complex` data type. It would be possible to write a star that supports a complex token read into an `anytype` input. To do this the star writer would have to check on the input type and make sure to do the intended function on both the X and Y memory components of the complex input token.

15.3 Attributes

In addition to the code generation attributes detailed in 13.2.6, for CG56 attributes are defined to specify the X and Y memory banks. They are:

`A_XMEM`	Allocate this state in X memory
`A_YMEM`	Allocate this state in Y memory

The underlying bits are `AB_XMEM`, and `AB_YMEM`. Each attribute above turns one off and turns the other on (e.g. `A_YMEM` turns `AB_YMEM` on and `AB_XMEM` off).

Also for CG56 stars, portholes can assert attributes `P_XMEM` and `P_YMEM`, which work in exactly the same way as `A_XMEM` and `A_YMEM`. The default attribute for a 56001 porthole is `P_XMEM`, which allocates the porthole buffer in X memory. Specifying the `P_YMEM` attribute places the porthole buffer in Y memory.

15.4 Code Streams

The CG56 domain uses the default assembly language code streams discussed in "Assembly code streams" on page 13-17. There are few target specific code streams detailed by target below.

15.4.1 Sim56Target Code Streams

`simulatorCmds`
: Collects the commands to configure the Motorola DSP simulator.

`shellCmds`
: Collects the commands that will be used in a shell script to start the run. The resultant script simply invokes the simulator with the file generated from `simulatorCmds`.

15.4.2 S56XTarget/S56XTargetWH Code Streams

`aioCmds`
: Collects the GUI specification which is interpreted by `qdm` or `gslider`.

`shellCmds`
: Collects the commands that will be used in a shell script to start the run. The resultant script can start qdm or gslider. In the case of the S56XTarget, it might also download and run the generated code on the S-56X dsp card.