

CUSTOMIZING THE ATmega128L

In order to customize the processor you must have the IAR compiler. The compiler is available from IAR (part no. EWA90PCUBLV150). You can find more information about this product at the website www.iar.com.

All the functions that are necessary to communicate with the Smart Media card and configure the FPGA is in the library file "Config_LIB.r90". You will need to include this file in your IAR project. The header file for the library is "Config_LIB.h" and contains the prototypes for some functions that you might find useful, such as "putchar", "getchar", and "printString". In addition, there is a C source file "menus.c" that currently contains the main function. This main function makes call to configure the FPGA upon power-on and reset and then displays a menu (by means of the serial port) giving the following options:

- 1) Configure FPGA(s) in SelectMAP mode
- 2) Check configuration status
- 3) Change MAIN configuration file
- 4) List files on Smart Media

Additional functionality can be added by simply adding more menu options that call your own functions.

Instructions for setting up a project with the IAR Embedded Workbench

Open up the IAR Embedded Workbench. Choose **File -> New -> Project**. The *Target CPU Family* should be set to A90. Select the location for your project and the name, choose Create. Next you will need to setup the project properties. Choose **Project -> Options**. In the *Category* window select *General* and then on the *Target* tab select -v3, Max 64 Kbyte data, 128Kbyte code for *Processor Configuration* and for *Memory mode* select Small. In the *Category* window select *XLINK* in the *Output* tab, under the *Format* choose Other and for *Output format*: select Motorola, for *Format variant* select None, and for *Module-local symbols*: select Include All. Now go to the *Include* Tab (still on XLINK Category), check the box *Override default* for the *XCL file name* and choose the location of the file "lnkDN3s.xcl" which was provided by The Dini Group. Now you are ready to start adding code. Please note there are many other project options as you most likely noticed, but these other options should be left at their default value. The following files must be added to IAR project in order to perform FPGA configuration in selectMAP mode:

Config_LIB.r90

Menus.c (this file contains "MAIN")

In addition, the file "Config_LIB.h" needs to be in the working directory for the project.

Please see comments in "menus.c" and "Config_LIB.h" for further details on what functions the library provides as well as where your code could be added.