

IAR Software-Development-Support for HALIOS IC E909.05 and E909.06

Quick-Start-Guide for
IAR Software-Development-Support
for HALIOS IC E909.05 and E909.06
Version 1.4
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1 Foreword

The component described by this document has been developed to support your first steps into HALIOS[®]-technology with HALIOS[®] IC E909.05 or E909.06 in the most suitable and easy way. Please read this manual completely and carefully.

Even more information about HALIOS[®] can be found on our website <http://www.mechaless.com/>.

In case of questions or feedback related with this product please feel free to contact us at:

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2 IAR-Version

Here are some hints how to get started with the IAR-IDE for E909.05 and E909.06.

This description is for the IAR-version V4.1x and V4.2x with additional components for E909.05 and E909.06 compile- and link support.

You can download a 30-days-full-use-evaluation-version from IAR homepage. To use this version you have to register at IAR by Internet or e-mail. The install-routine will feed you during the installation and the registering-process.

2.1 Priming the Hardware

For the MSP430-Flash-Emulation-Tool you will need a standard-printer-port. Check if port-address-range of this parallel-port starts at "0x378", you find this information in Windows by right-clicking "Working-Place", "Properties", "Hardware", select "Device manager" under "Resources", "I/O-range" for your printer-port e.g. LPT1. If this is not you have to set an environment variable by right click to workspace, than properties, card expanded, button "environment variable", button "new", Name: "JTAG_PORT_ADDR" and as Value the read out start address for example: "0xDCA8".

2.2 Installation IAR

Important: Avoid blanks in install-path-, file- and project-names – use short ones like "C:\program\IAR" as root-path and "C:\program\IAR\WORK" as workspace-path. This is important for the ELMOS-Tool-Chain.

Use the "Full"-installation. Change install path!

2.3 Setup for E909.05 and E909.06 in IAR-workbench

Copy the directory ".430" from USB stick "\software_source_files\ide\iar\iar_addon\430" to the path from your IAR where this directory already exists. Click "Yes" to override this.

If you are going to use IC E909.05 or flashing the IC E909.06 with the external flash tool copy the directory "tools" from USB "\software_source_files\ide\tools" stick to "C:\mechaless". If this directory does not exist you have to create it first. This location is necessary because the call of the external flash tool in the IAR workbench delegate to this folder. The description for the external flash tool is found in chapter 4 Using an external flash tool.

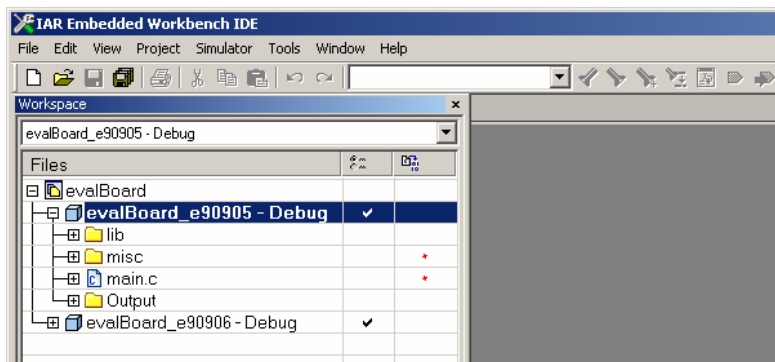
3 Example

Create/modify a project as needed (remember the character set-restriction when choosing a name/path for workspace and/or project). You will find an example on the delivered USB stick. The examples are called *application notes*. Choose “File”, “Open...”, “Workspace...”, search for the example and then choose the workspace file “*.www”. It is also possible to create a new workspace and add the existing project. After creating a new workspace click “Project” and choose “Add Existing Project...”. File ending for a project is “*.ewp”.

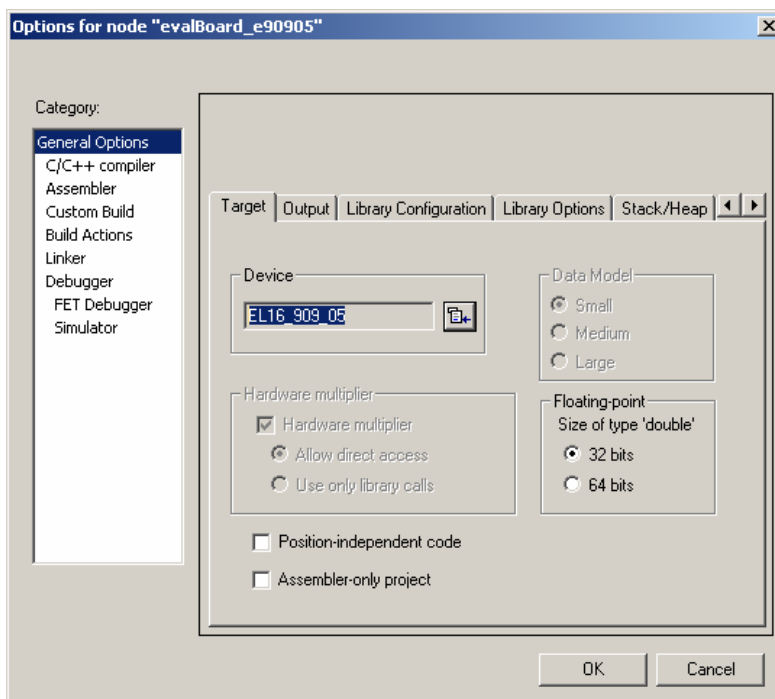
Each application note is available for E909.05 and E909.06 in separated projects. Both project files are integrated in one workspace and contain the same files except the firmware library and the project settings. Always select and highlight the project you work with.

3.1 Configure E909.05

Be sure to highlight your projects root node for E909.05 first (Picture 1). In the project's options-menu (“Project”, “Options”, category “General Options”) choose the device “EL16_909_05” (Picture 2).

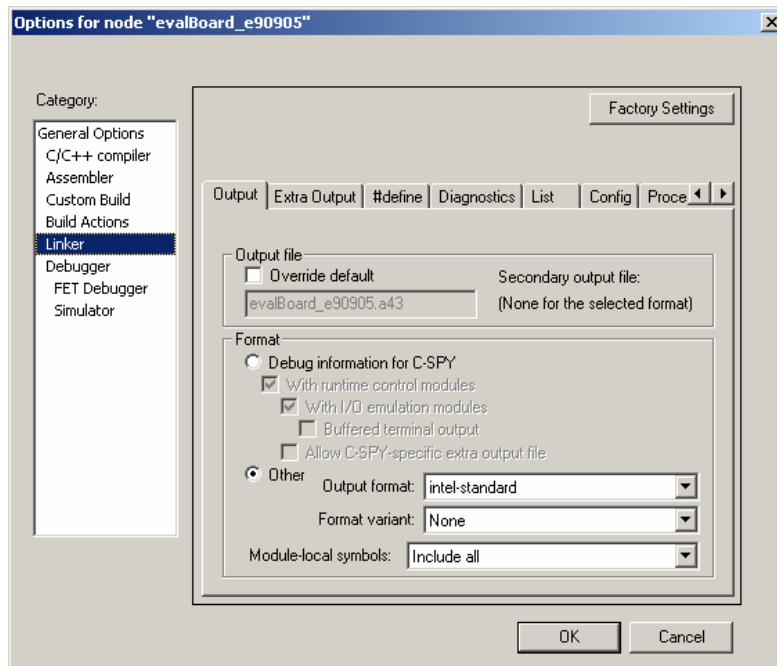


Picture 1: Project root node for E909.05



Picture 2: Project settings for E909.05

Navigate to category Linker and in the group box Format set the radio button to **Other**. In the combo box **Output format** set it to *intel-standard* as it is shown in Picture 3.

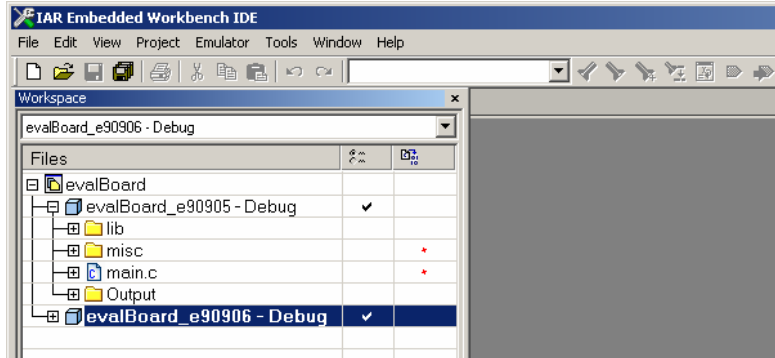


Picture 3: Linker options for E909.05

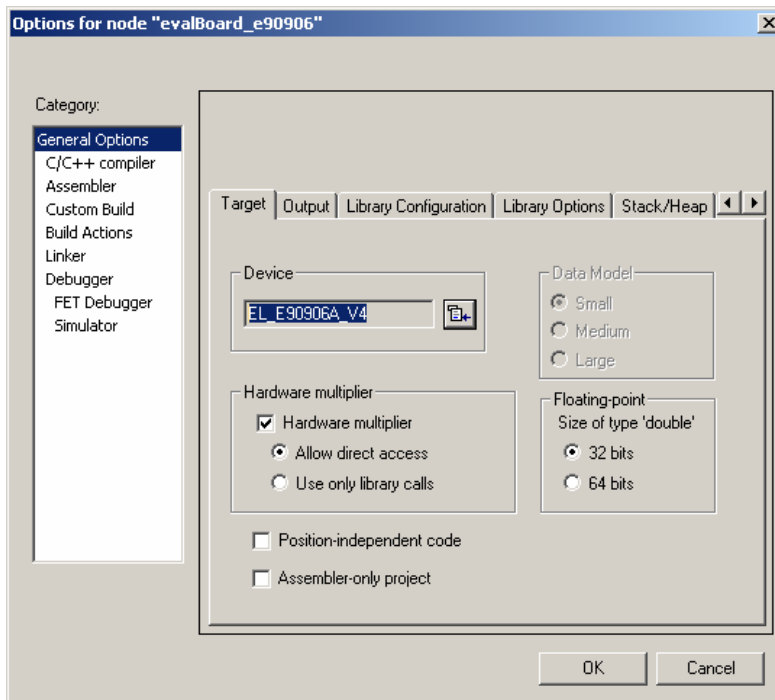
Please keep in mind that IC E90905 is not able to debug. For flashing the device an external flash tool is used. Therefore refer to chapter 4 *Using an external flash tool* for detailed information.

3.2 Configure E909.06

Be sure to highlight your projects root node for E909.06 first (Picture 4). In the project's options-menu ("Project", Options", category "General Options") choose the device "EL16_90906A_V4" (Picture 5).

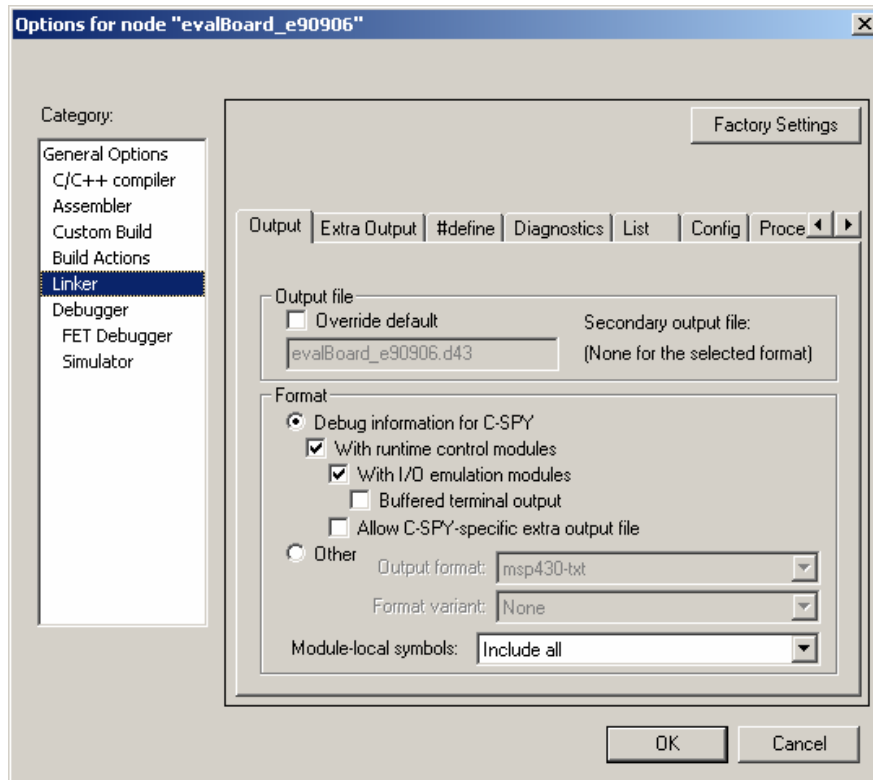


Picture 4: Project root node for E909.06



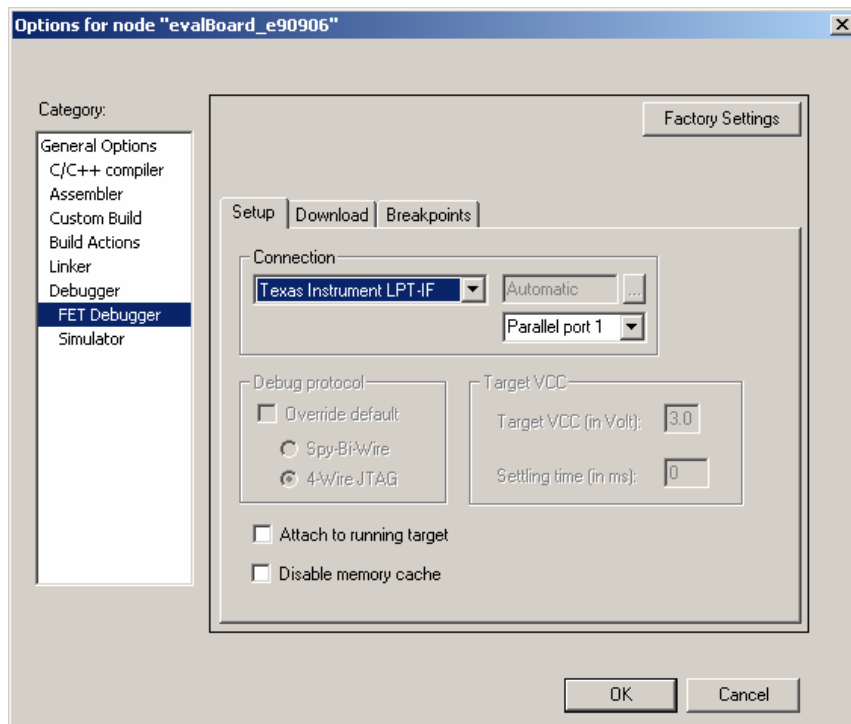
Picture 5: Project settings for E909.06

In category **Linker** within group box **Format** choose **Debug information for C-SPY** for output format (Picture 6). This format is required by IAR when downloading the file with the IAR debugger.



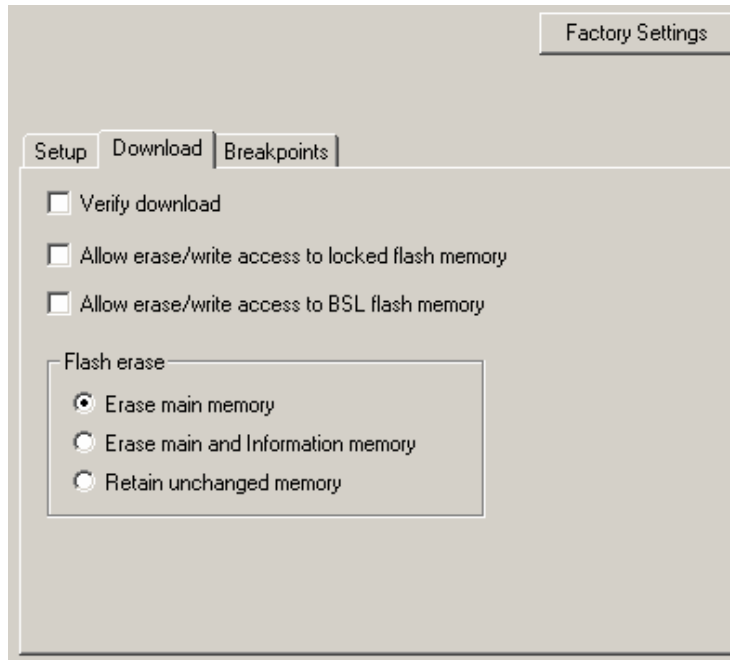
Picture 6: Screenshot from Options, Linker

Make sure that in category **Debugger** within tab **Setup** the *FET Debugger* is selected. For debugging in C language ensure that the check box **Run to** is checked and the text *main* is set in the label below. Then in category **FET Debugger** choose *Texas Instrument LPT-IF* and *Parallel port 1* for connection (Picture 7).



Picture 7: Setup for FET Debugger, category Setup

After setting the connection change to tab **Download**. Remove any checked state and set the radio button *Erase main memory* in group box **Flash erase** as it is shown in Picture 8.

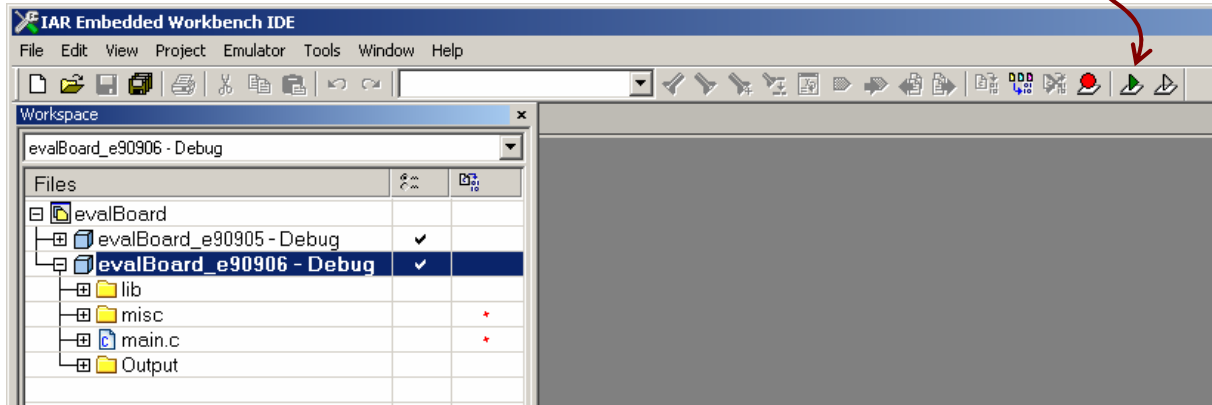


Picture 8: Setup for FET Debugger, category Download

3.3 Build project and download to E909.06

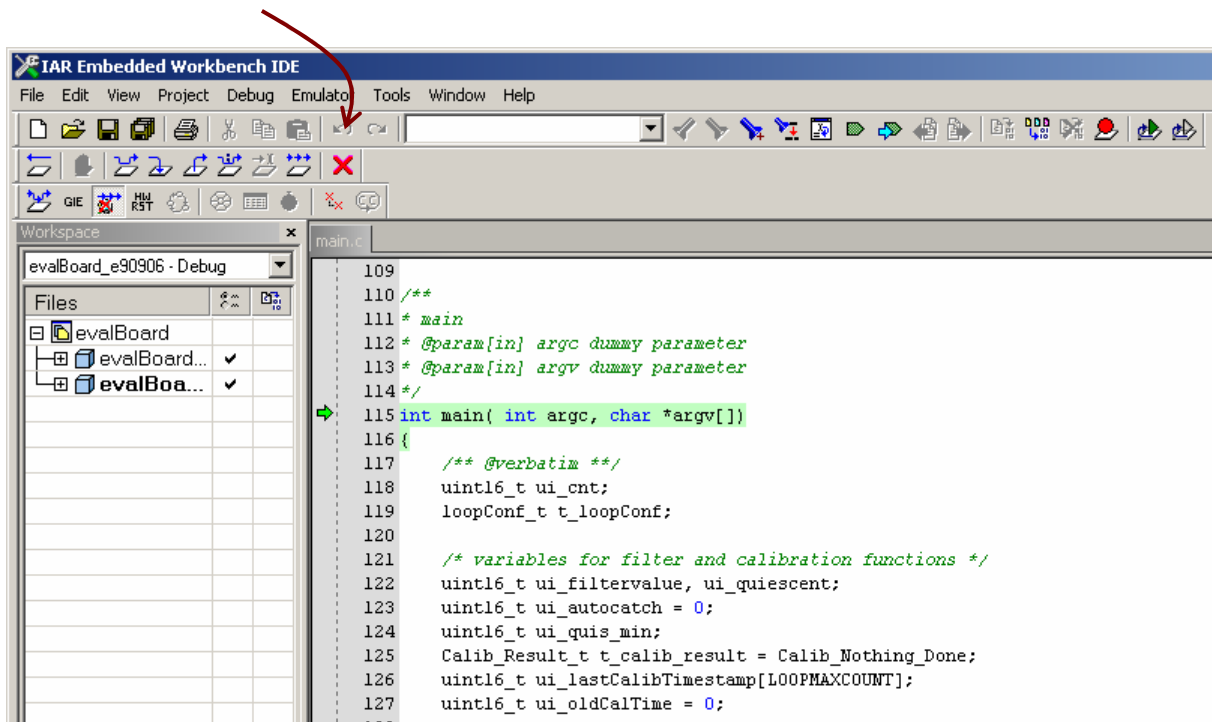
Now you are ready to build your first project. Choose **Project** and click *Rebuild all*. The Messages-Box should show *Total number of errors: 0*.

Download the project in your E909.06 by press the “Download and Debug” Button (Picture 9).



Picture 9: Download the program to E909.06

After downloading the visualization of the IDE changes to debug mode and the program runs to main and holds on. You are now able to debug the application with IAR. You can leave the debug mode by press the red X in the IAR toolbar (Picture 10). After leaving debug mode the visualization changes again to normal mode. After a reset for the hardware the program runs free.



Picture 10: Debug E909.06

4 Using an external flash tool

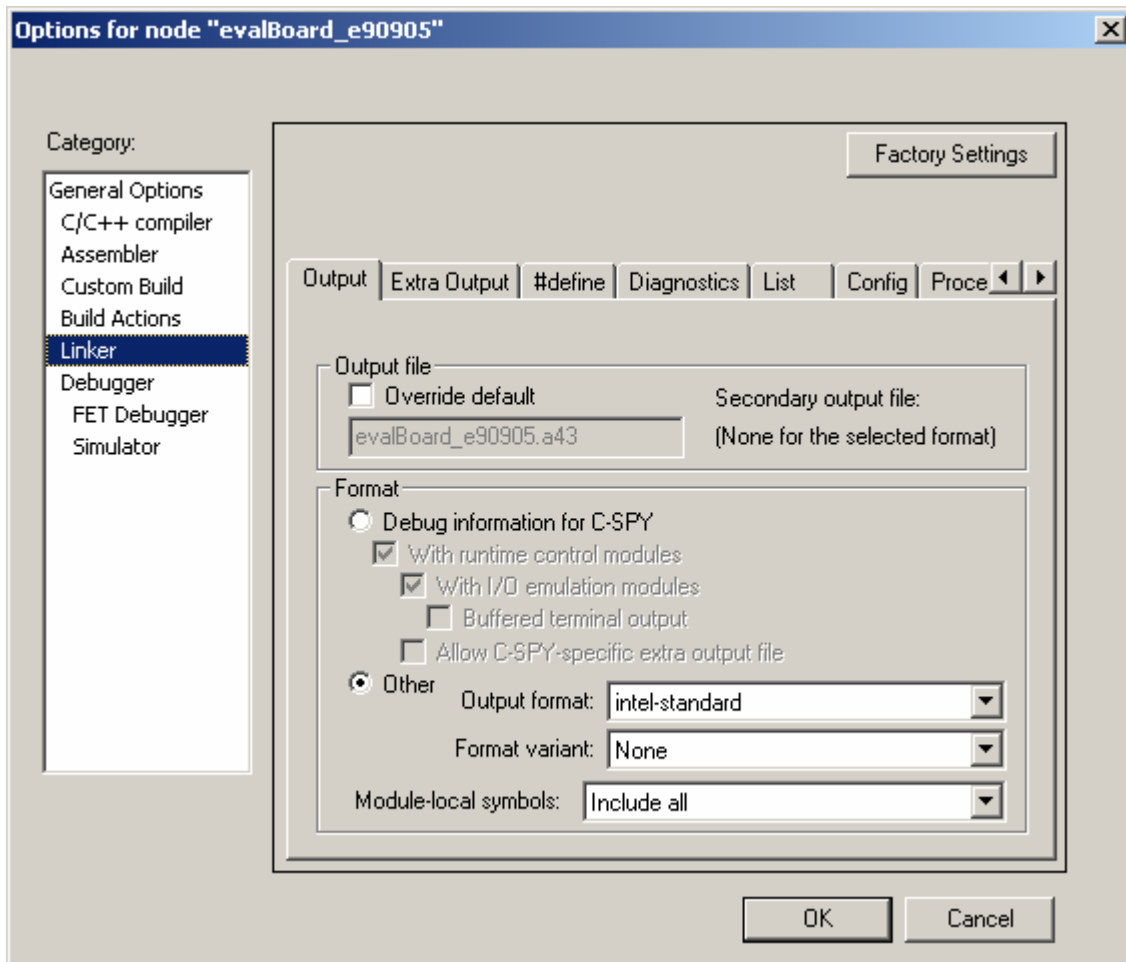
4.1 Additional installation

1. If you want to integrate the external Flash tool you have to install the program **giveio**. You will find this in “**software_source_files\ide\install\giveio_setup.exe**”.

2. It is necessary that you have copied the directory “**tools**” from “**software_source_files\ide**” to “**C:\Mechaless**” (chapter 2.3). If the directory does not exist you have to create it.

4.2 Configuring the IAR-workbench for external flash tool

For flashing the device with the external flash tool `el16_jtag.exe` requires an intel hex file format. Therefore open the project settings and navigate to category **Linker**. In tab **Output** within group box **Format** choose **Other** for output format as it is shown in Picture 11.



Picture 11: Required linker options when using the external flash tool

4.2.1 Configure flash Tool for E909.05

1. Start your IAR-workbench IDE. Integrate the EL16-Flash-tool for E909.05 by creating a tool-menu-item. Open **Tools, Configure Tools...** , **new...** from Main-Menu and create a new entry as shown below (Picture 12).

Enter Menu Text:

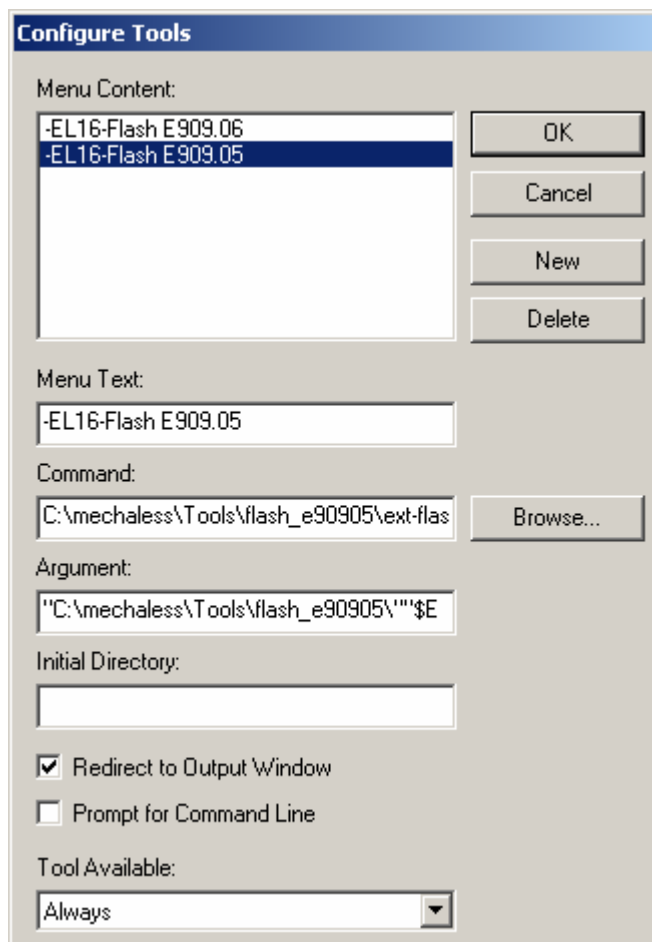
-EL16-Flash E909.05

Command:

C:\mechaless\Tools\flash_e90905\ext-flash-el16.bat

Argument:

"C:\mechaless\Tools\flash_e90905\""\$EXE_DIR\$TARGET_FNAME\$"



Picture 12: Configuring the IDE for the external flash tool for E909.06

Make sure to activate "Redirect to output window". Confirm with OK.

2. It is advisable to make a key-binding for instant access to this new function. Go to **Tools, Options...** and choose **Key bindings**, select **Tools** in dropdown-box **Menu** and highlight the new one **-EL16-Flash**. Define something like "CTRL+ALT+F" for the new command (you will be noticed, if your key-selection is already in use). Apply it with the **Set** button.

4.2.2 Configure flash Tool for E909.06

1. Start your IAR-workbench IDE. Integrate the EL16-Flash-tool for E909.06 by creating a tool-menu-item. Open **Tools, Configure Tools...** , **new...** from Main-Menu (Picture 4) and create a new entry as shown below (Picture 13).

Enter Menu Text:

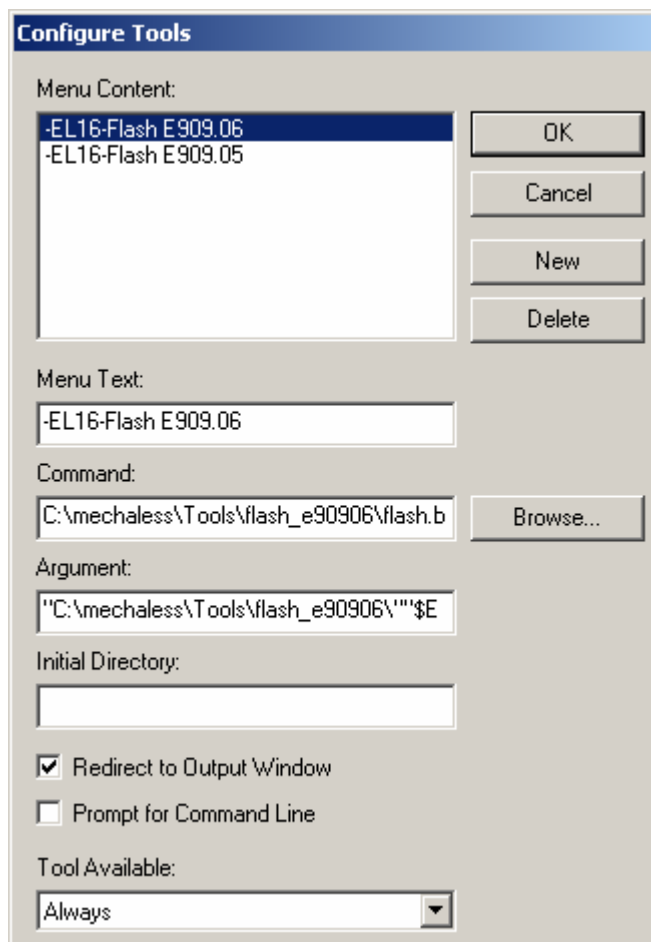
-EL16-Flash E909.06

Command:

C:\mechaless\Tools\flash_e90906\flash.bat

Argument:

"C:\mechaless\Tools\flash_e90906\ ""\$EXE_DIR\$TARGET_FNAME\$"



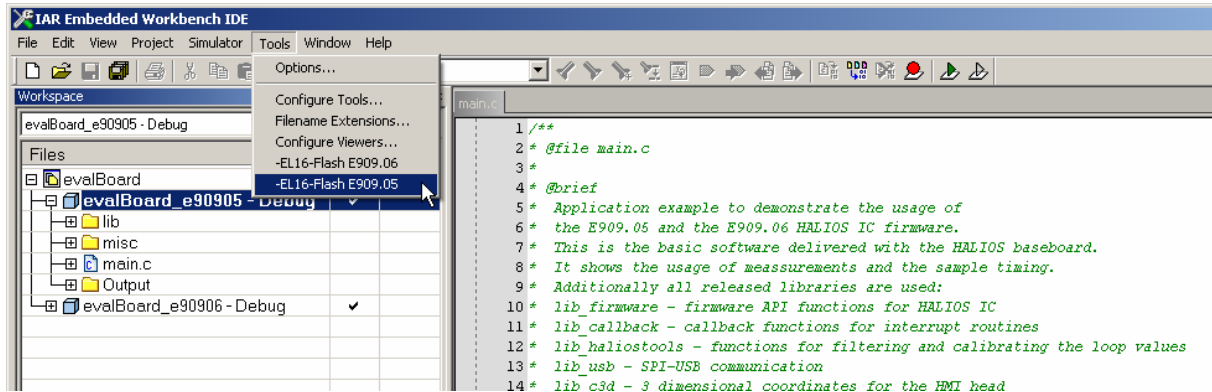
Picture 13: Configuring the IDE for the external flash tool for E909.06

Make sure to activate "Redirect to output window". Confirm with OK.

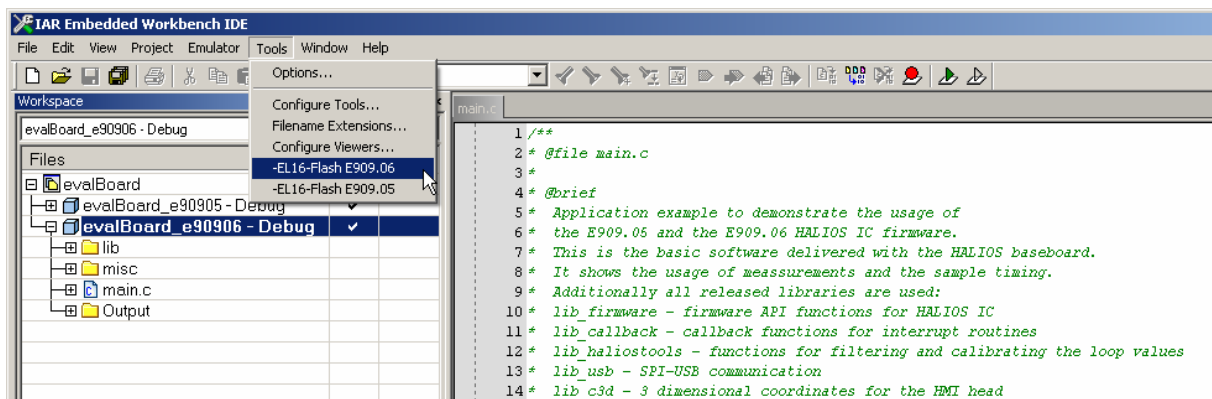
2. It is advisable to make a key-binding for instant access to this new function. Go to **Tools, Options...** and choose **Key bindings**, select **Tools** in dropdown-box **Menu** and highlight the new one **-EL16-Flash**. Define something like "CTRL+ALT+F" for the new command (you will be noticed, if your key-selection is already in use). Apply it with the **Set** button.

4.3 Start external flash tool

Each device E909.05 and E909.06 use different Flash tools. When you have configured the flash tool for the device you are going to use, you are now able to flash the device. Click on the flash command for the adequate device in menu item **Tools** to start the external flash tool (Picture 14 and Picture 15).



Picture 14: Calling the external flash tool for E909.05



Picture 15: Calling the external flash tool for E909.06

Before calling the flash tool make sure that you have selected the project with the device you are using (E909.05 and E909.06 require different flash tools).

Attachment

A. History of changes

Version	Datum	Verfasser	Status	Bemerkung
1.0	05.12.2007	FDE	Release	
1.1	12.01.2009	FDE	Release	New Version of IAR-DEMO-VERSION; empty sites removed
1.2	10.09.2009	FDE	Release	Hardware priming was edit
1.3	11.01.2009	MKI	preliminary	According to E909.06 all chapters reworked
1.4	10.06.2010	MKI	Release	Documentation for support of E909.05 and E909.06 reworked