NEC

Application Note

Self-Programming with the Development Tool

IE-78K0-NS-A
ID78K0-NS

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1. Introduction

The emulator IE-78K0-NS-A provides the possibility to support the flash self-programming by using the flash self-programming library for the emulator.

2. Development Tool Version

Depending on the version of the development tools two different ways of the self-programming support are possible. Based on the internal firmware of the emulator a hardware and a software solution or just a software solution can be used.

The following versions of the development tool part have to be used for the emulation of the self-programming:

Software solution (only) of the self-programming

IE-78K0-NS-A - from hardware level “B” Note onward

ID78K0-NS - Version V2.02

Hardware solution and software solution of the self-programming

IE-78K0-NS-A - from hardware level “F” Note onward

ID78K0-NS - Version V2.02

Caution: Before the self-programming with the development tool is used, be sure that the necessary device file or device file and FPGA data of the corresponding emulation board supports the necessary functions.

Note: The hardware level of the development tool item is define by the second character of the serial number.

3. The Tool Control Language - Tcl/Tk

The debugger ID78K0-NS supports a control language (implementation of Tcl/Tk) for the different functions of the debugger/emulator.

The control language has to be enabled in the following way:

- Make a shortcut to the file “ID78K032A.EXE”.
- Check the properties of the shortcut and add the command /Tcl after the file name in Target.

Figure 3-1: Modification of the Shortcut to IDK032A.EXE

- After the start of the debugger the new menu item “Console” is available in the Browse menu.

When the menu item “Console” of the Browse menu is selected, a window for command inputs is opened.

Figure 3-2: Console Window

4. Solution of the Self-Programming

4.1 Software Solution of the Self-Programming

In case the software solution of the self-programming is used on the development tool the following commands have to be used:

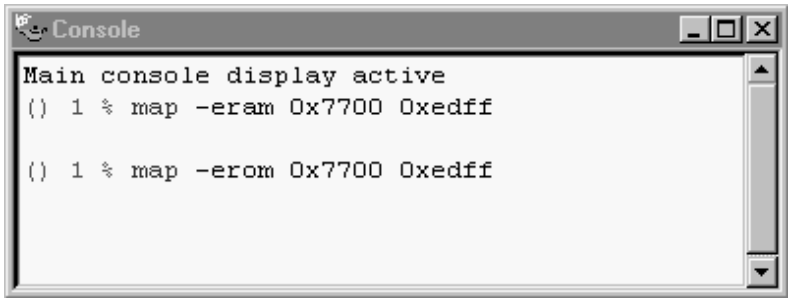
- Enabling of the self-programming (example)

map **-eram** 0x7700 0xedff

- Disabling of the self-programming (example)

map **-erom** 0x7700 0xedff

Figure 4-1: Software Solution of the Self-programming



4.2 Hardware Solution of the Self-programming

- Enabling of the self-programming

ie otp 0107 1

- Disabling of the self-programming

ie otp 0107 0

Figure 4-2: Hardware Solution of the Self-programming

5. Operation precautions of the Development Tool

(1) Source Code Reference

When the self-programming is used on the development tool the reference between the source window and the assembler code is lost. Due to this the debugging is not possible on source mode level.

(2) System Hang-up

A system hang-up can occur after closing the debugger ID78K0-NS, when the tool control panel/ console window was not closed during the debugging session.

(3) Memory definition of the self-programming solution

When the software solution is used the selected memory range can be rewritten without an error information.

When the hardware solution is used the whole memory range can be rewritten without an error information.

(4) Error messager of debugger

When the console window is opened the error messages will be shown in the console window and not as a message window of the debugger.

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