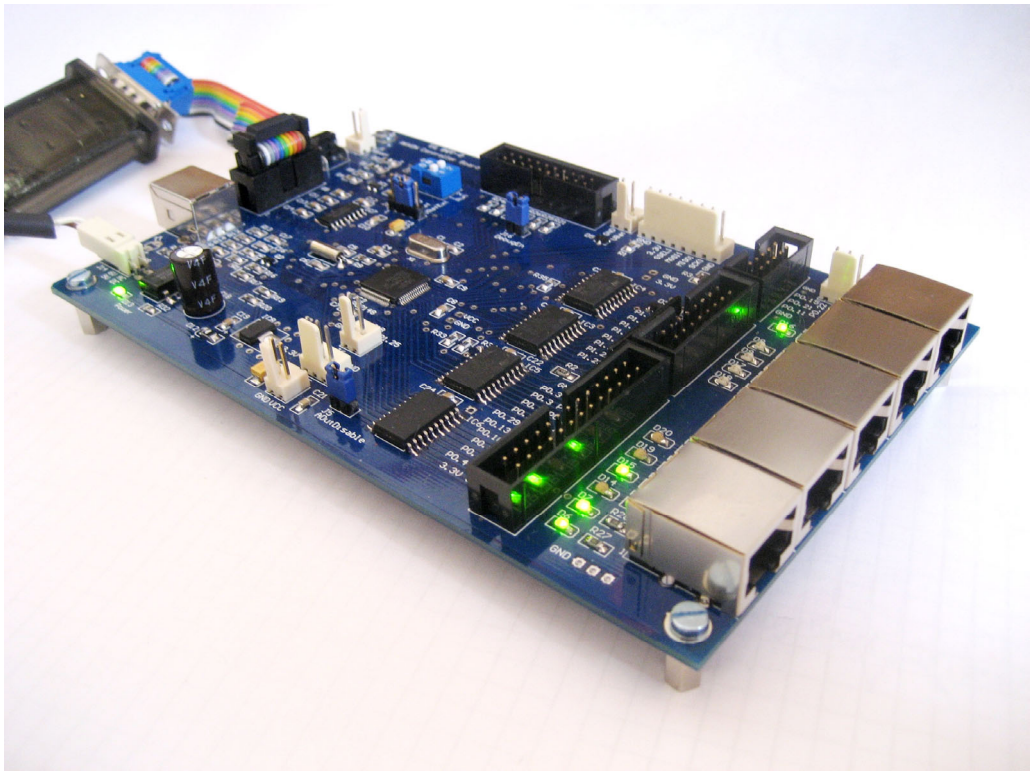
TN014

AKKON USB CONTROLLER BOARD

USB microcontroller board with the ARM7 LPC2148™*

Firmware update



Authors: Gerhard Burger
Version: 1.1
Last update: 23.06.2008
File: TN014_AKKON_USB_Controller_Board_RS232_Firmware_Update.doc
Attachments: no attachments

Table of versions

Version	Date	Remarks
1.0	23.06.2008	first version
1.1	26.06.2008	improvement

1 Introduction

The AKKON USB Controller Board is a prototyping or development board based on the LPC2148 ARM7 micro controller, with USB support, power supply and IO drivers. The board is designed as development kit for starting up working with ARM7 microcontrollers and for fast development of new devices.

This document outlines step by step how to put new firmware to the AKKON USB Controller Board.

2 Programming AKKON USB Controller Board over RS232

The LPC2148 ARM7 micro controller is supplied with a built in serial boot loader. By that way new firmware can easily be actualized by the user without special hardware tool.

3 Necessary hardware and software

- Philips LPC2000 Flash Utility (free available on www.nxp.com). Test was made with Philips Flash Utility version 2.2.3
- USB to serial converter cable or serial cable connecting a PC with the AKKON USB Controller Board
- AKKON USB Controller Board
- The user firmware that has to be uploaded to the AKKON USB Controller Board

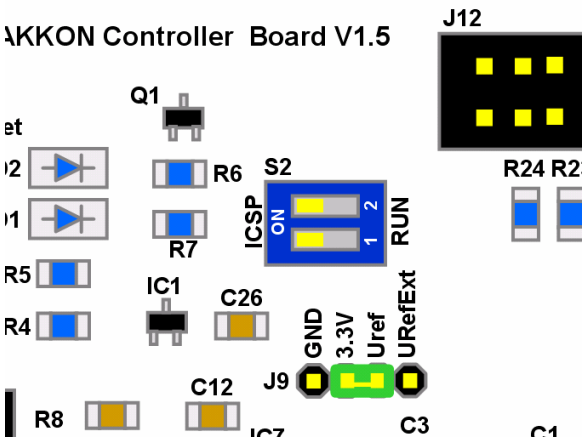
4 Five steps to upload firmware to AKKON USB Controller Board

4.1 Step 1: Power up AKKON USB Controller Board

Put power supply of around 12VDC or 9V AC to the AKKON USB Controller Board.

4.2 Step 2: Switch to ICSP-mode

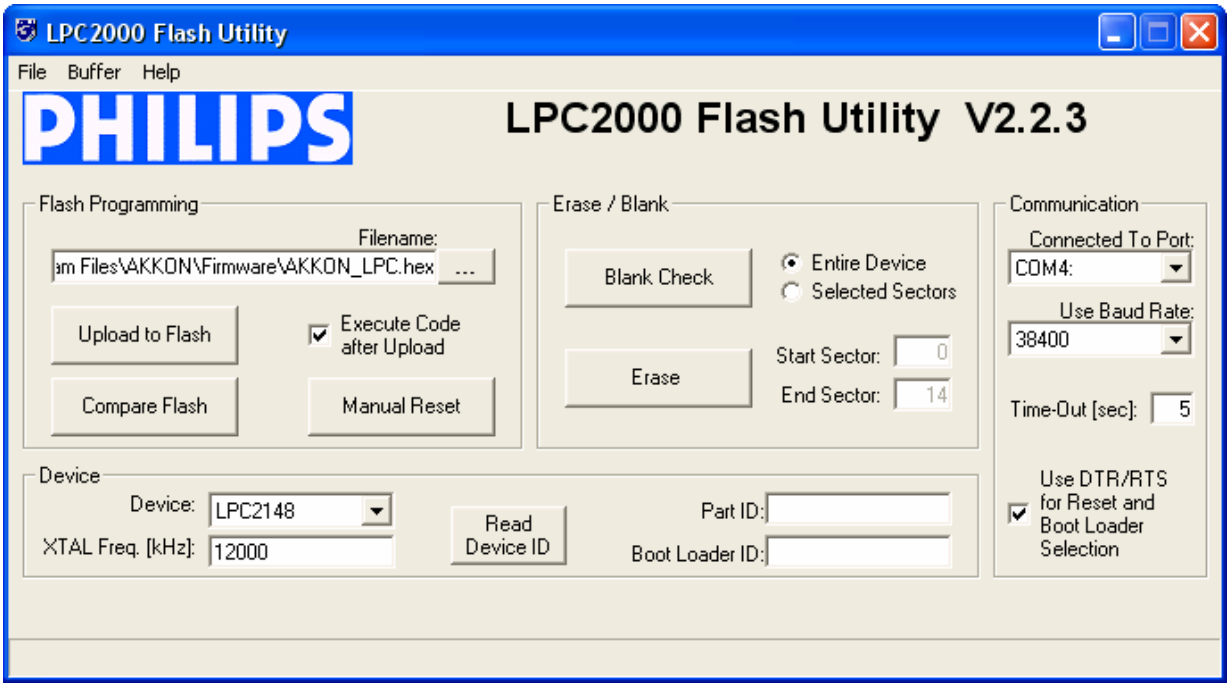
Set both dip switch position of S2 to the In Circuit Serial Programming- mode (ICSP-mode).



4.3 Step 3: Create connection between PC and AKKON USB Controller Board

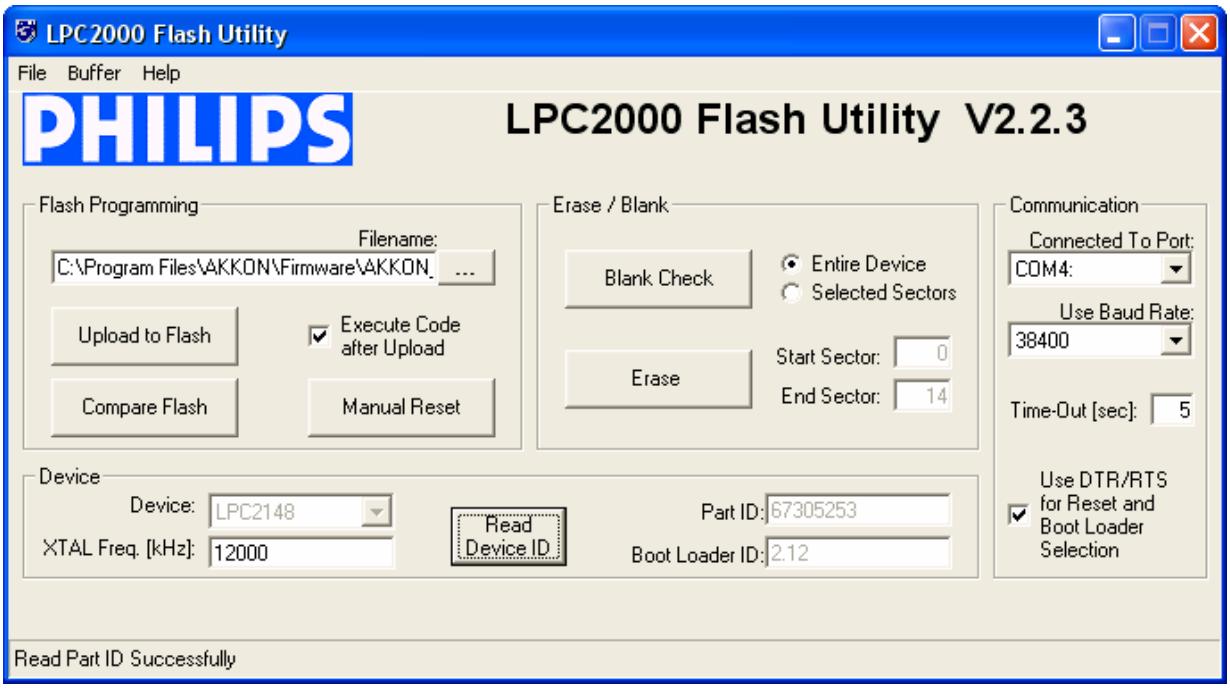
Use serial cable or USB to serial converter for creation of a connection between PC and AKKON USB Controller Board.

4.4 Step 4: Run LPC2000 Flash Utility



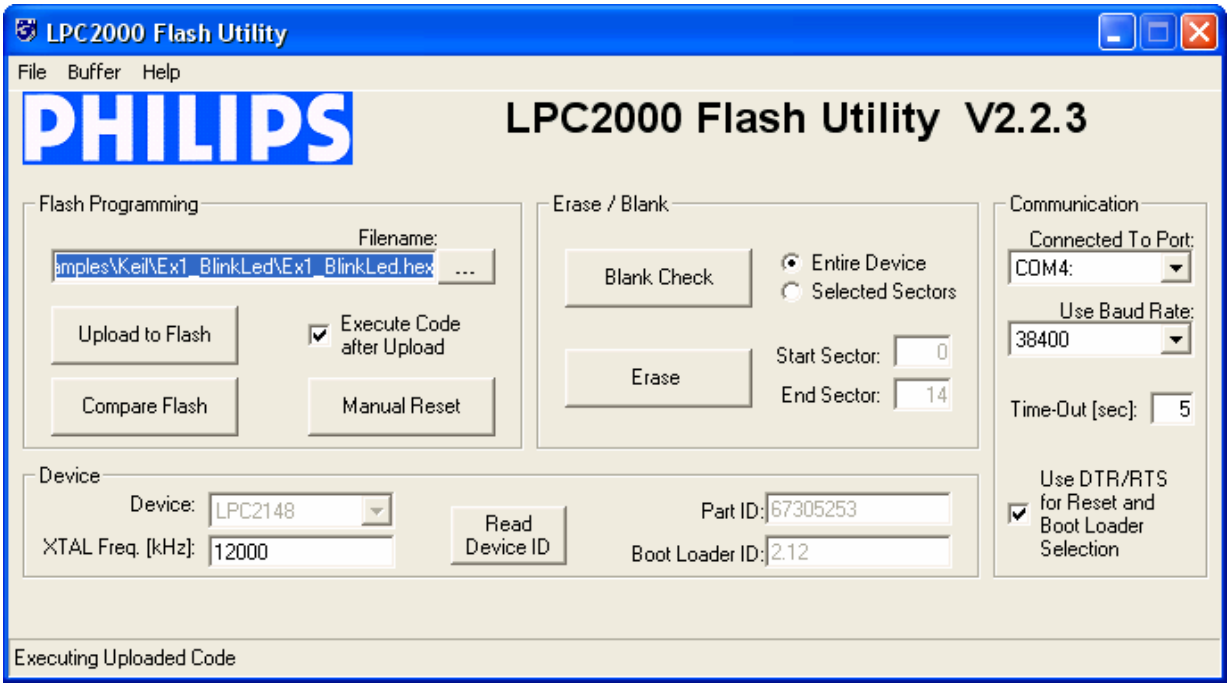
Select user program, RS232-port and then press button “Upload to Flash”.

Press button “Read Device ID”



The Part ID and Boot Loader ID will appear in the exit boxes. Also the status of the operation is displayed in the status bar “Rear Part ID Successfully

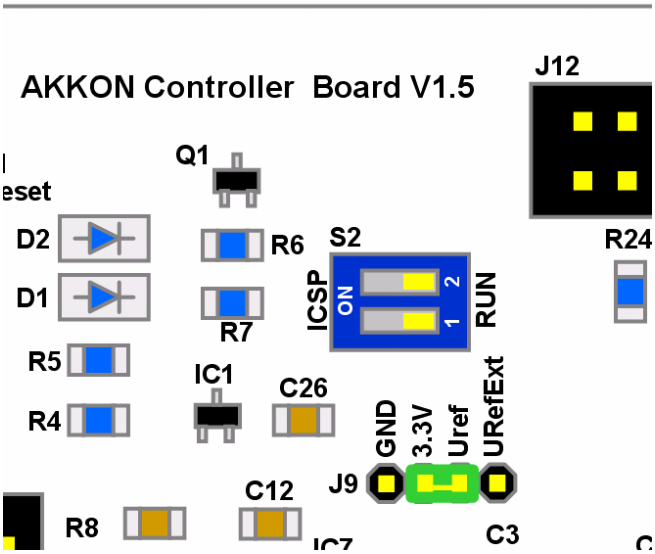
4.5 Step 5: Select application to upload an program device



Select the application that should be uploaded to the Controller Board e.g. Ex1_BlinkLed.hex and press button “Upload to Flash”. After successful upload, the status bar should display the message “Executing Uploaded Code”.

4.6 Step 6: Switch to RUN-mode

Execute program by setting S2 to RUN-mode and pressing button S1 (Reset) on AKKON USB Controller Board.



5 Known problems

- Serial adapter cable has wrong pin IO
- Switch S2 is in wrong position. This situation can also be if switch S2 is has been mirrored soldered in
- Power supply not connected to the board or board is not enough powered
- R8 a capacitor has been soldered in instead o a 10K resistor

6 Disclaimer

6.1 Limited Warranty and Disclaimer of Warranty

THIS SOFTWARE AND ACCOMPANYING WRITTEN MATERIALS (INCLUDING INSTRUCTIONS FOR USE) ARE PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND. FURTHER, the author DOES NOT WARRANT, GUARANTEE, OR MAKE ANY REPRESENTATIONS REGARDING THE USE, OR THE RESULTS OF USE, OF THE SOFTWARE OR WRITTEN MATERIALS IN TERMS OF CORRECTNESS, ACCURACY, RELIABILITY, CURRENTNESS, OR OTHERWISE. THE ENTIRE RISK AS TO THE RESULTS AND PERFORMANCE OF THE SOFTWARE IS ASSUMED BY YOU. IF THE SOFTWARE OR WRITTEN MATERIALS ARE DEFECTIVE YOU, AND NOT the author OR ITS DEALERS, DISTRIBUTORS, AGENTS, OR EMPLOYEES, ASSUME THE ENTIRE COST OF ALL NECESSARY SERVICING, REPAIR, OR CORRECTION.

THE ABOVE IS THE ONLY WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, THAT IS MADE BY the author, ON THIS PRODUCT. NO ORAL OR WRITTEN INFORMATION OR ADVICE GIVEN BY the author, ITS DEALERS, DISTRIBUTORS, AGENTS OR EMPLOYEES SHALL CREATE A WARRANTY OR IN ANY WAY INCREASE THE SCOPE OF THIS WARRANTY AND YOU MAY NOT RELY ON ANY SUCH INFORMATION OR ADVICE.

NEITHER the author NOR ANYONE ELSE WHO HAS BEEN INVOLVED IN THE CREATION, PRODUCTION OR DELIVERY OF THIS PRODUCT SHALL BE LIABLE FOR ANY DIRECT, INDIRECT, CONSEQUENTIAL OR INCIDENTAL DAMAGES (INCLUDING DAMAGES FOR LOSS OF BUSINESS PROFITS, BUSINESS INTERRUPTION, LOSS OF BUSINESS INFORMATION, AND THE LIKE) ARISING OUT OF THE USE OR INABILITY TO USE SUCH PRODUCT EVEN IF the author HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

6.2 ACKNOWLEDGMENT

BY USING THIS PRODUCT YOU ACKNOWLEDGE THAT YOU HAVE READ THIS LIMITED WARRANTY, UNDERSTAND IT, AND AGREE TO BE BOUND BY ITS' TERMS AND CONDITIONS. YOU ALSO AGREE THAT THE LIMITED WARRANTY IS THE COMPLETE AND EXCLUSIVE STATEMENT OF AGREEMENT BETWEEN THE PARTIES AND SUPERSEDE ALL PROPOSALS OR PRIOR AGREEMENTS, ORAL OR WRITTEN, AND ANY OTHER COMMUNICATIONS BETWEEN THE PARTIES RELATING TO THE SUBJECT MATTER OF THE LIMITED WARRANTY.