This document describes the firmware update procedure for MHV-4.
The latest firmware file can be found at
http://mesytec.com/downloads/firmware updates/MHV4/

Requirements

- Lattice Programming Cables
- Lattice Diamond Programmer
- The latest MHV-4 CPLD firmware file
- USB Cable Type A → B
- Atmel Flip Programmer
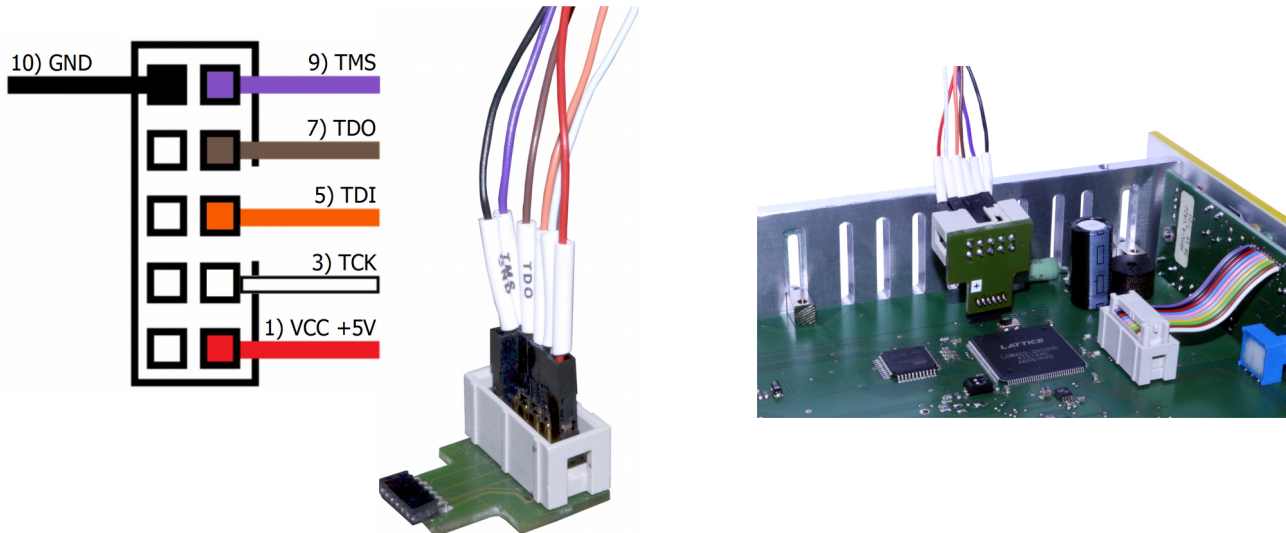- The latest MHV-4 CPU firmware file
- These steps are for Windows

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Download Lattice Diamond Programmer

- Download the "Lattice Diamond Programmer" from the following link.
http://www.latticesemi.com/en/Products/DesignSoftwareAndIP/FPGAandLDS/LatticeDiamond.aspx

- In order to download the software, it is necessary to register on the Lattice homepage.
- Scroll down to the table and chose the **"Programmer Standalone".**
- Be sure to download the 32 bit or 64 bit version depending on the operating system version you are using.
- After the download is complete, unzip the zip-file.
- Start the **"Programmer.exe"** and follow the setup assistant.
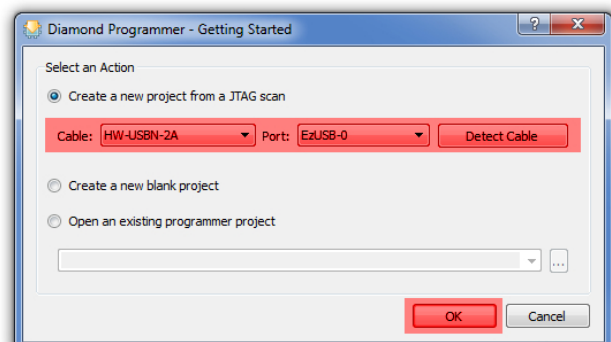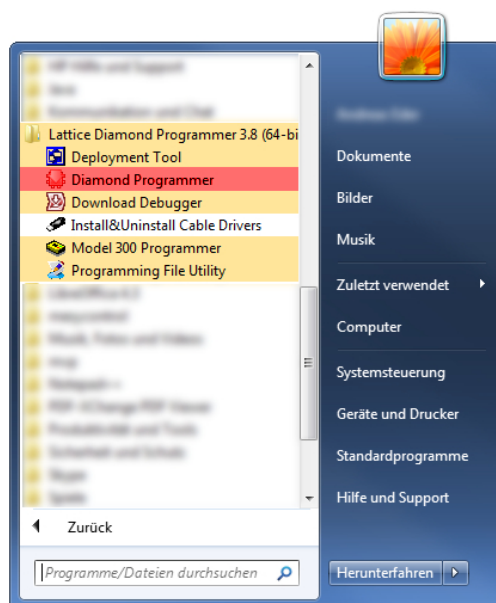
mesytec GmbH & Co. KG
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Connection of Cables

- Connect the **"Lattice Prgramming Cable"** with the USB-Cable to your PC.
- The USB driver is automatically installed by Windows. Wait until the installation is complete.
- Connect the coloured cables to the mesytec adapter plate.
- And connect the adapter plate to the MHV-4
- Be sure to observe polarity.
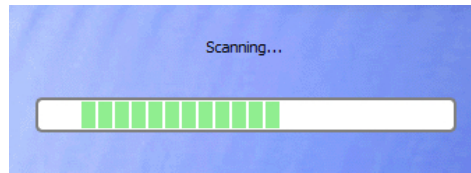- Power on the MHV-4.
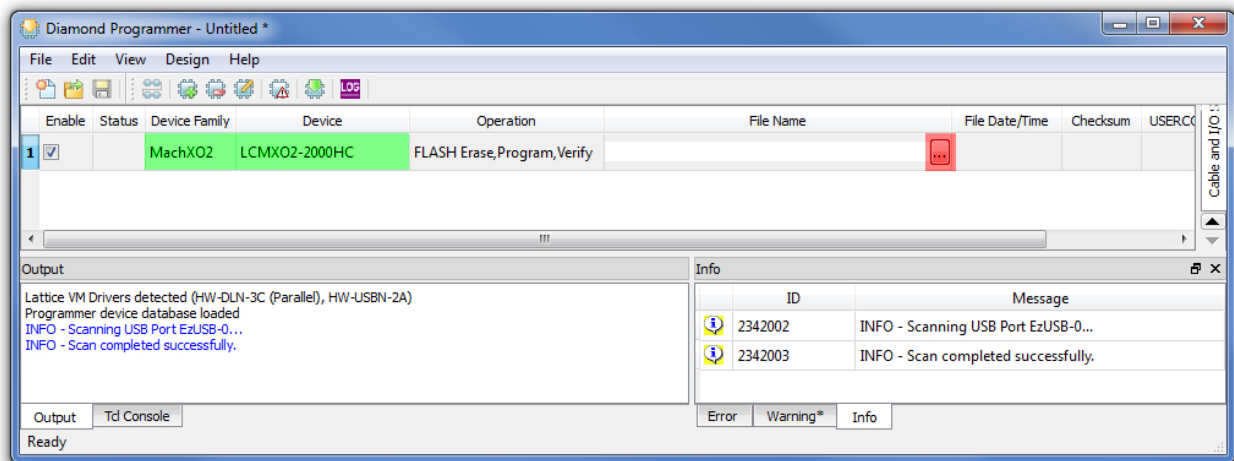

Start the Lattice Diamond Programmer

- Start the programmer from the start menu.
- Click on **"Detect Cable"** and after detection click **"OK".**

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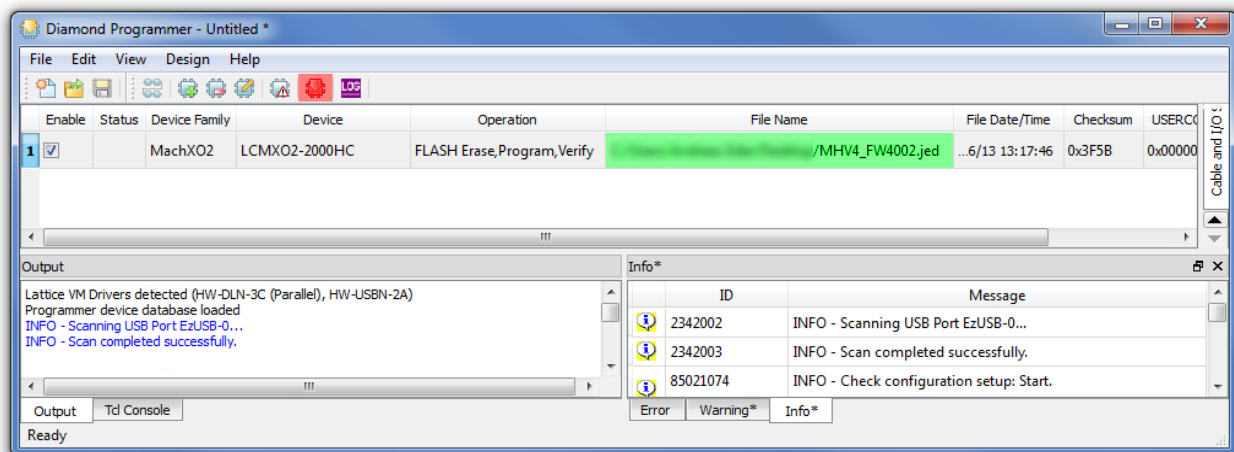- The Lattice Diamond Programmer scan automatically the Lattice Component.

- In the green coloured area you can see the scanned Lattice Component.
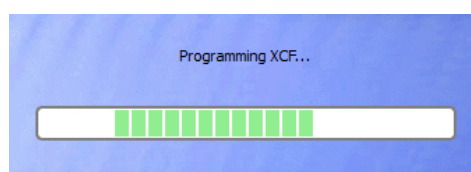- Click on the red coloured button to add the **".jed file."**
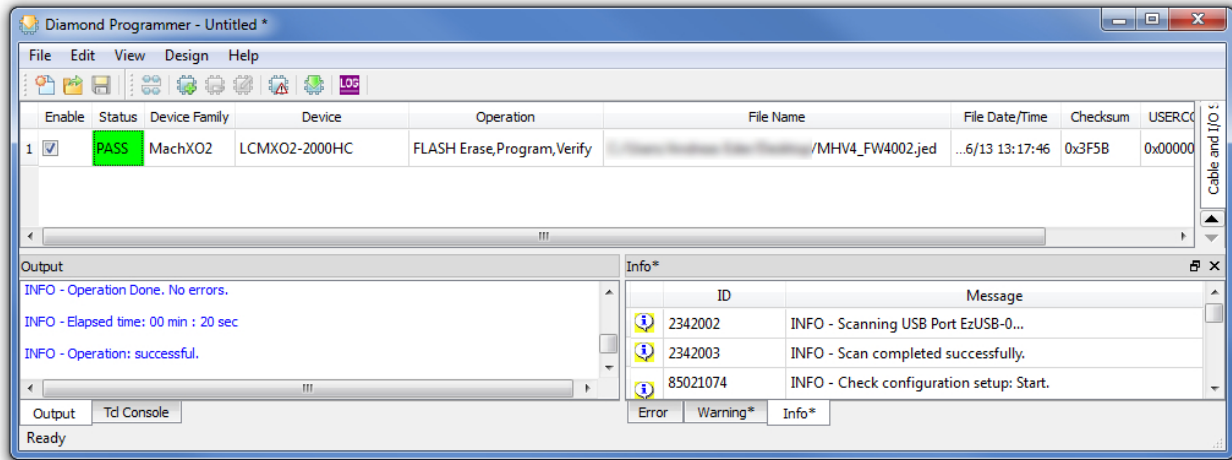

Programming

- In the green coloured area you can see the loaded firmware file.
- Click on the red coloured button to programm the Lattice Component.

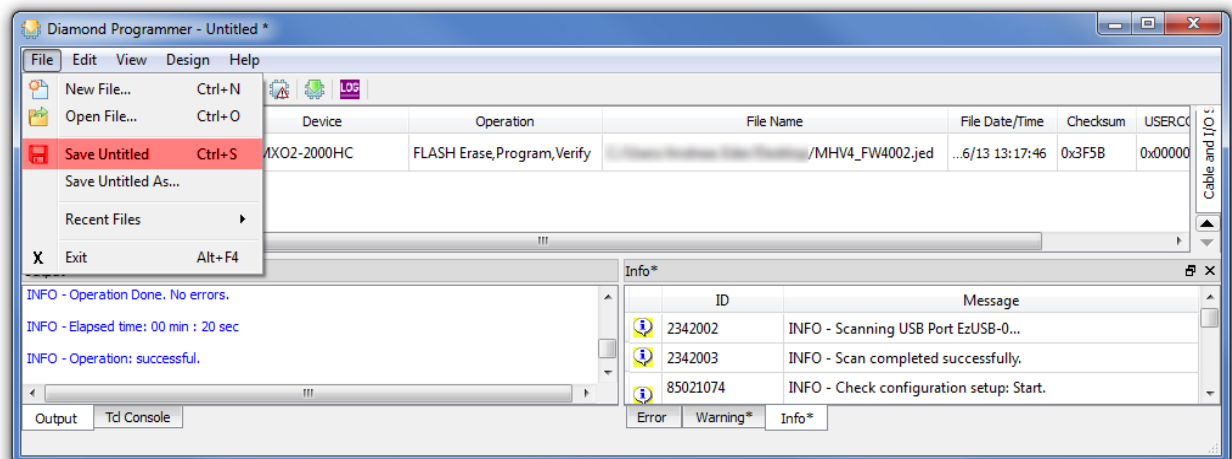- The Lattice Diamond Programmer is programming the Component.

- In the "Status" column appears the Info "PASS" and is highlighted in green.
- At the bottom of the Output window, you can also see that the programming was successful.

The MHV-4 CPLD Firmware is now updated

Project saving

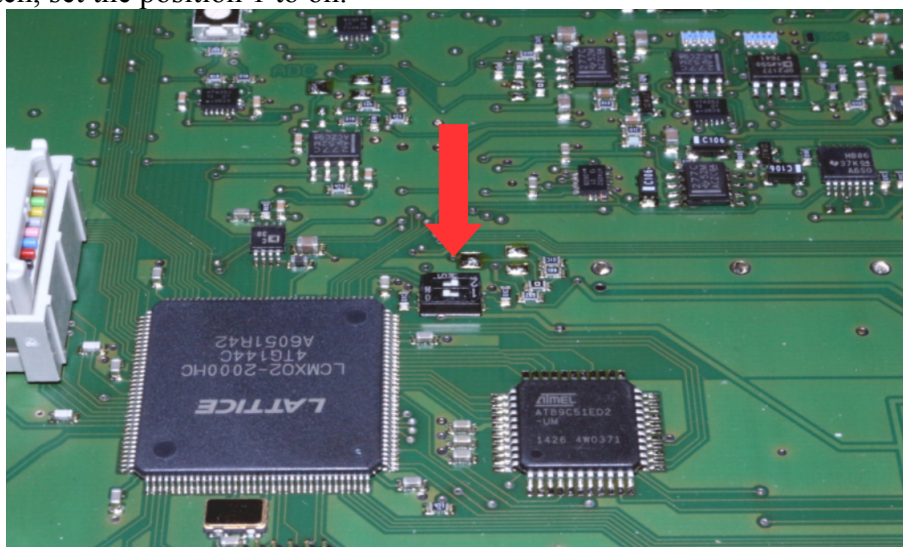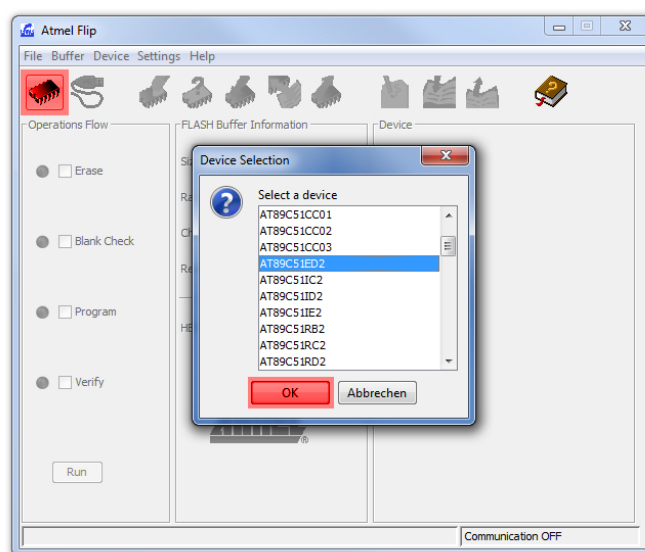- All settings can be stored to update other MHV-4 at a later time.

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Download Atmel Flip Programmer

- Download the "Atmel Flip Programmer" from the following link.
http://www.atmel.com/tools/flip.aspx

- To download the software, it is not necessary to register.
- After the download is completed, click on the **"Flip Installer.exe"** and follow the setup assistant.

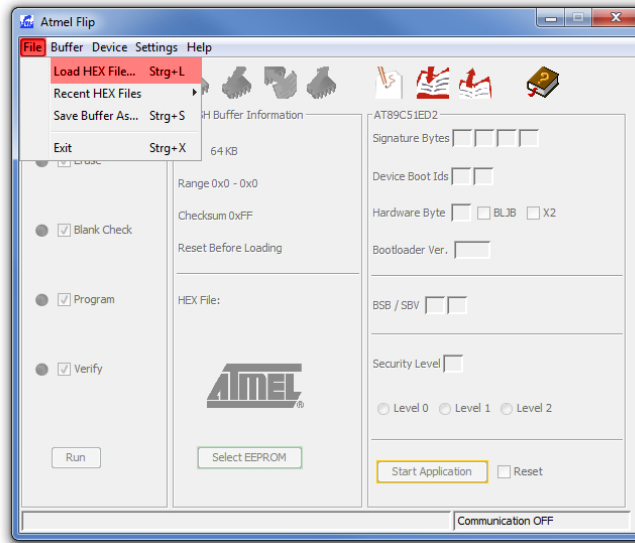# Connection and configuration of the Atmel Flip Programmer

- Connect the MHV-4 with the USB Cable Type A → B to your computer.
- The USB driver is automatically installed by Windows. Wait until the installation is complete.
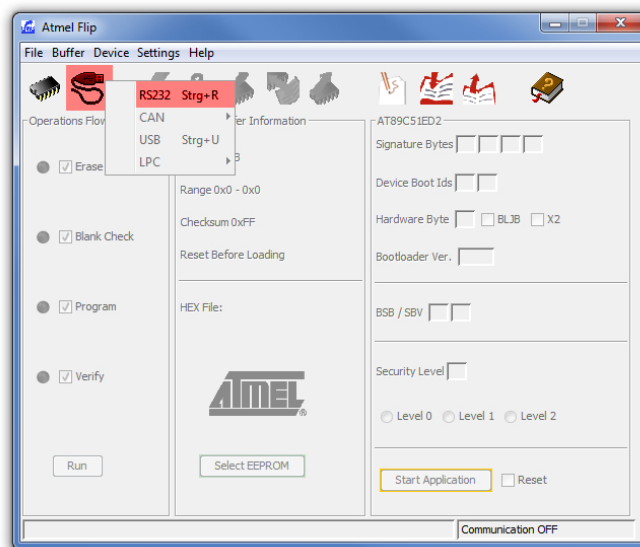- On the switch, set the position 1 to on.

- Start the Atmel Flip Programmer.
- Click on the red coloured button on the upper left, choose the **AT89C51ED2** Device, click "OK"

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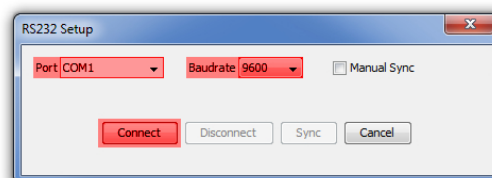info@mesytec.com – www.mesytec.com

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- Load the .hex file.

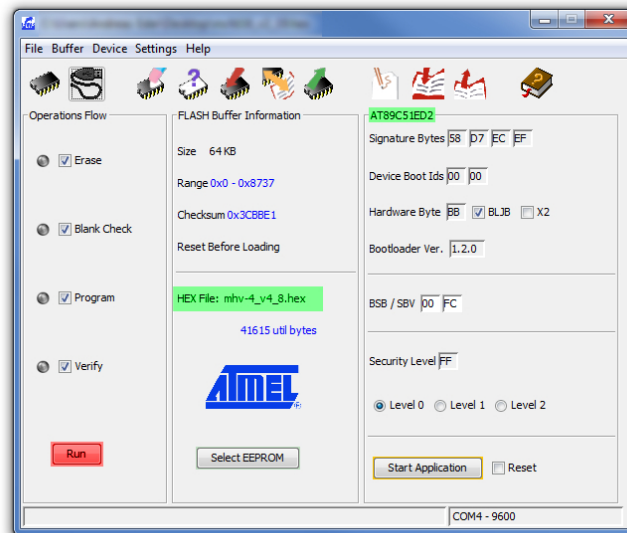- Click on the usb cable button and open the RS232 connection.

- Choose your **Com Port**, select **Baudrate 9600** and click **Connect.**
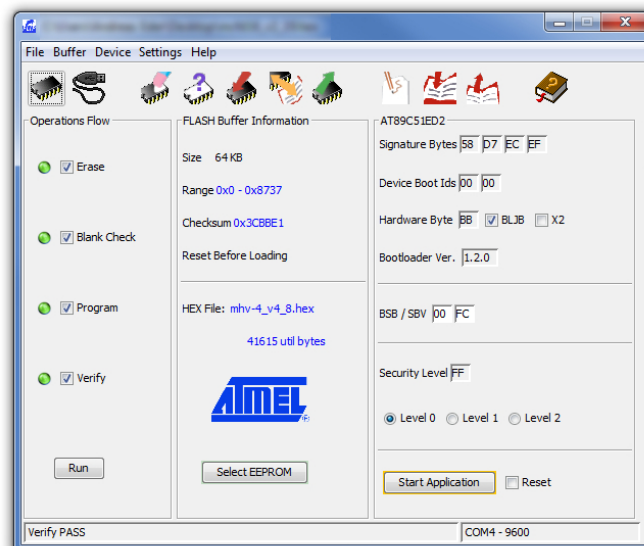
Programming

- Check the green areas again to make sure that all settings have been accepted.
- If the settings correct, click on the **"Run"** button.

- If all the lamps light up green, programming is complete.

The MHV-4 CPU Firmware is now updated
Do not forget to switch position 1 back to off.

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