

This document describes the firmware update procedure for MRC-1.

The latest firmware file can be found at

http://mesytec.com/downloads/firmware_updates/MRC1/

Requirements

- Lattice Programming Cables
- Lattice Diamond Programmer
- The latest MRC-1 CPLD firmware file
- Serial Cable
- Microchip Flip Programmer
- The latest MRC-1 CPU firmware file
- These steps are for Windows

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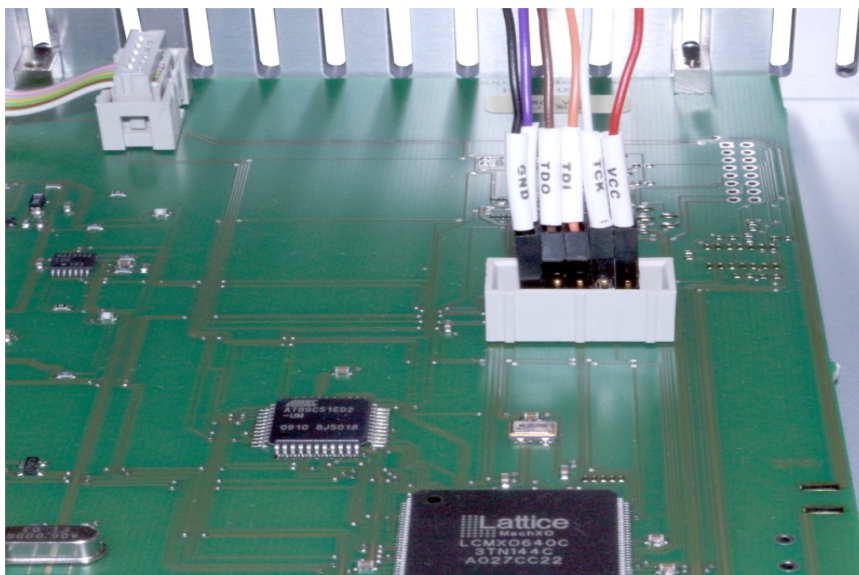
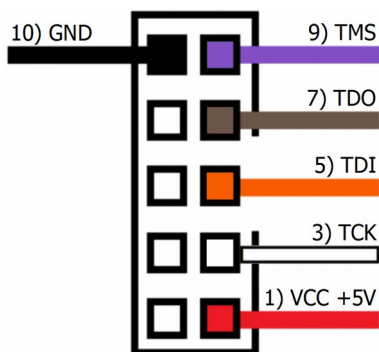
[Programming](#)

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.

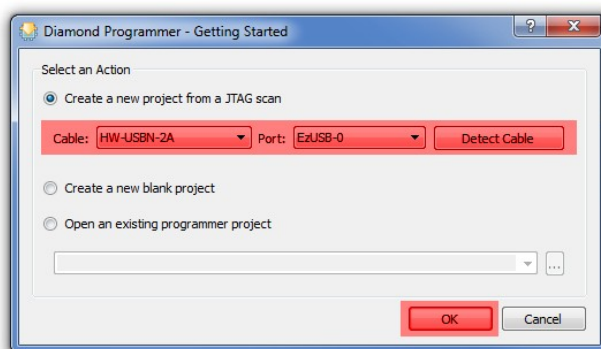
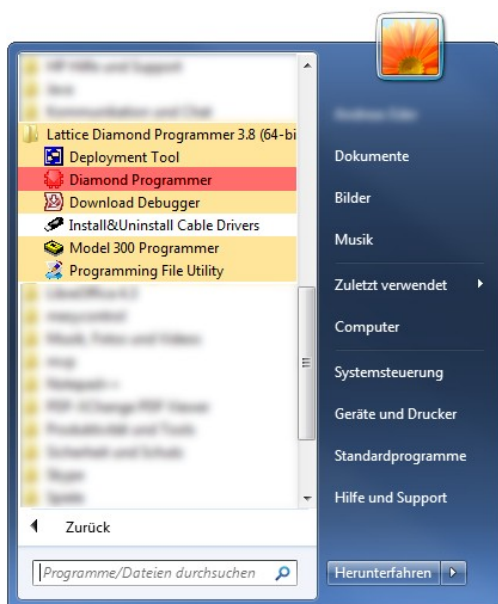
Connection of Cables

- 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 coloured cables to the MRC-1
- Power on the MRC-1.

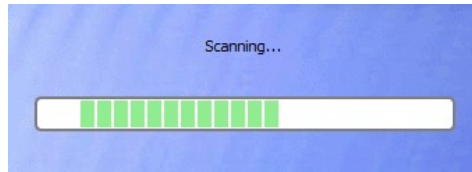


Start the Lattice Diamond Programmer

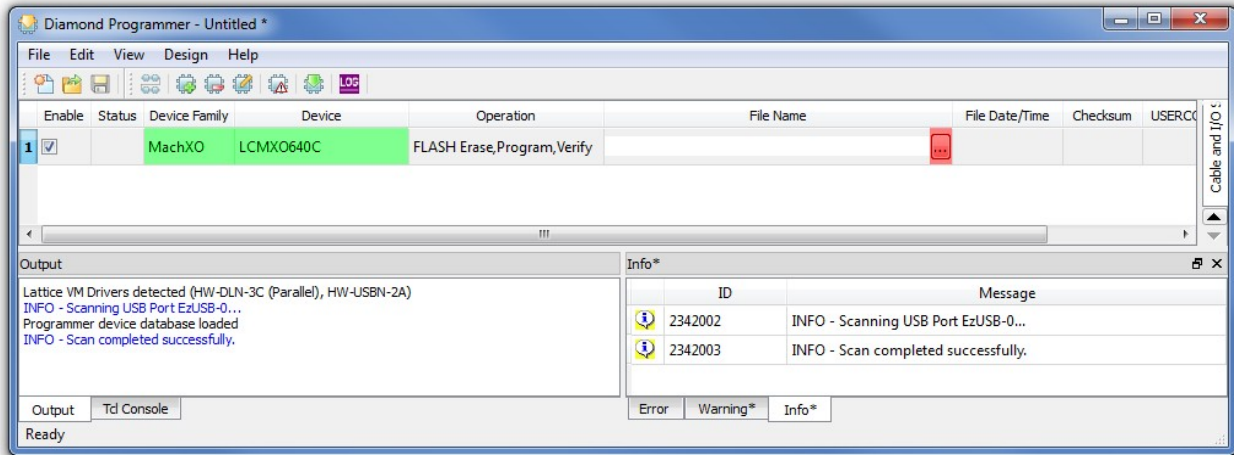
- Start the programmer from the start menu.
- Click on “**Detect Cable**” and after detection click “**OK**”.



- The Lattice Diamond Programmer scan automatically the Lattice Component.

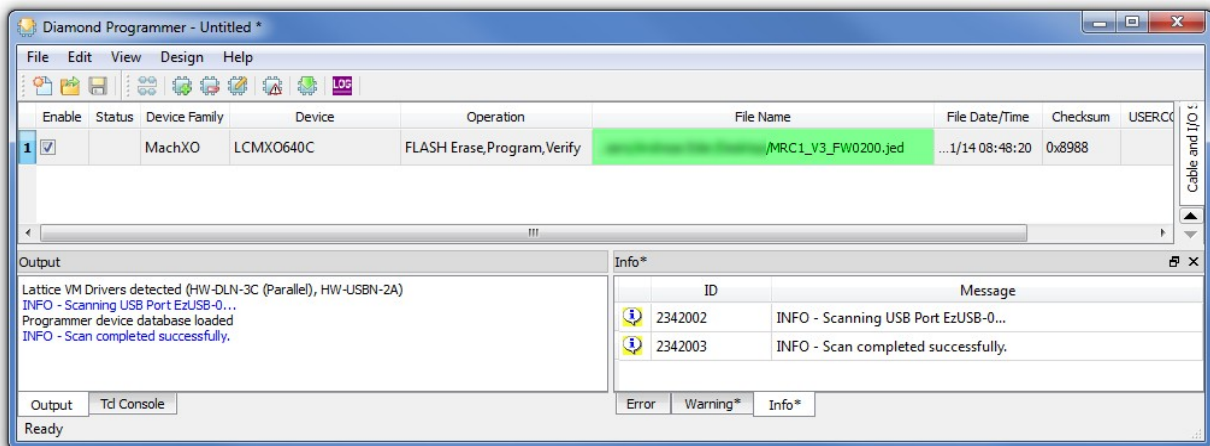


- In the green coloured area you can see the scanned Lattice Component.
- Click on the red coloured button to add the “.jed file.”



Programming

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

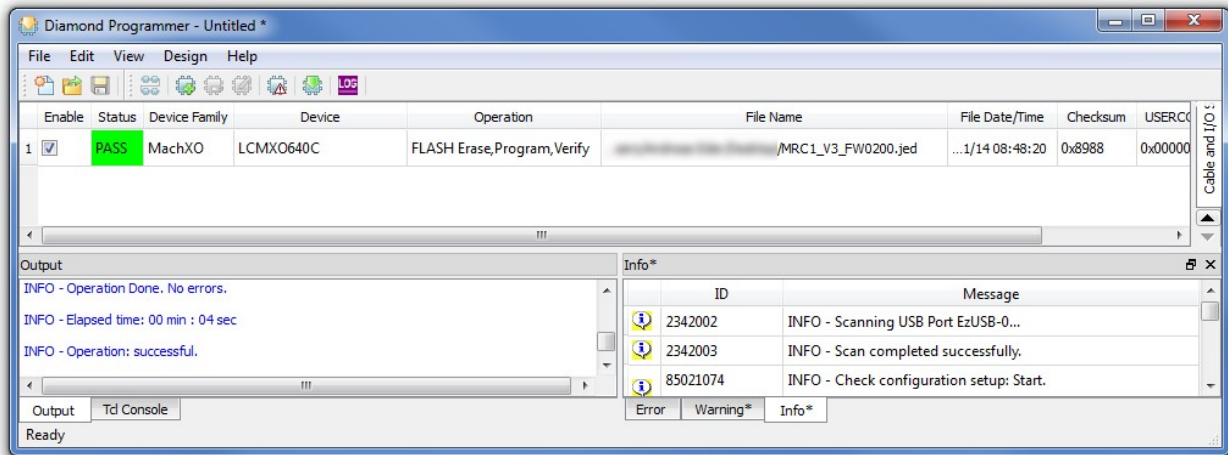


- The Lattice Diamond Programmer is programming the Component.



- In the "Status" column

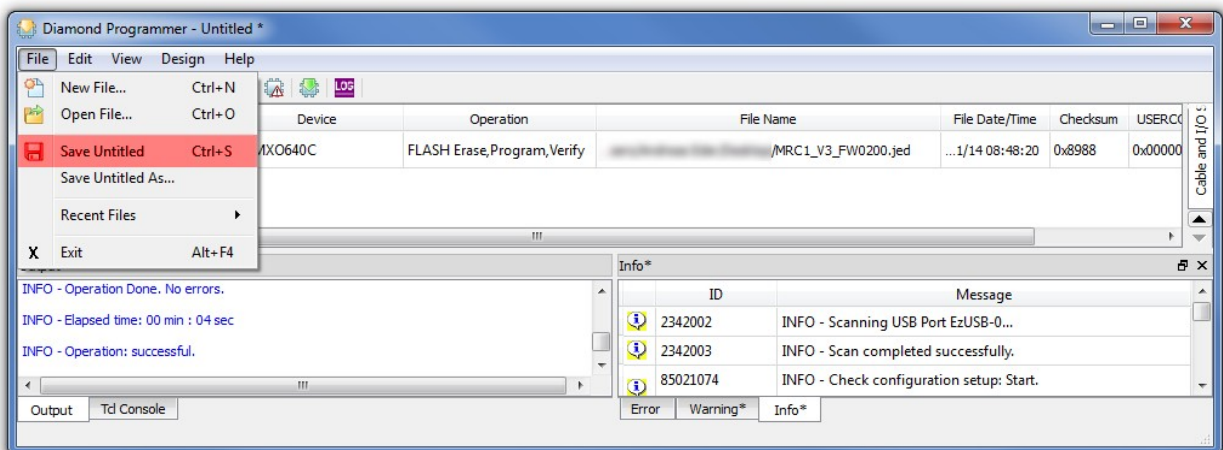
- appears the Info "PASS" and is highlighted in green.
- At the bottom of the Output window, you can also see that the programming was successful.



The MRC-1 CPLD Firmware is now updated

Project saving

- All settings can be stored to update other MRC-1 at a later time.

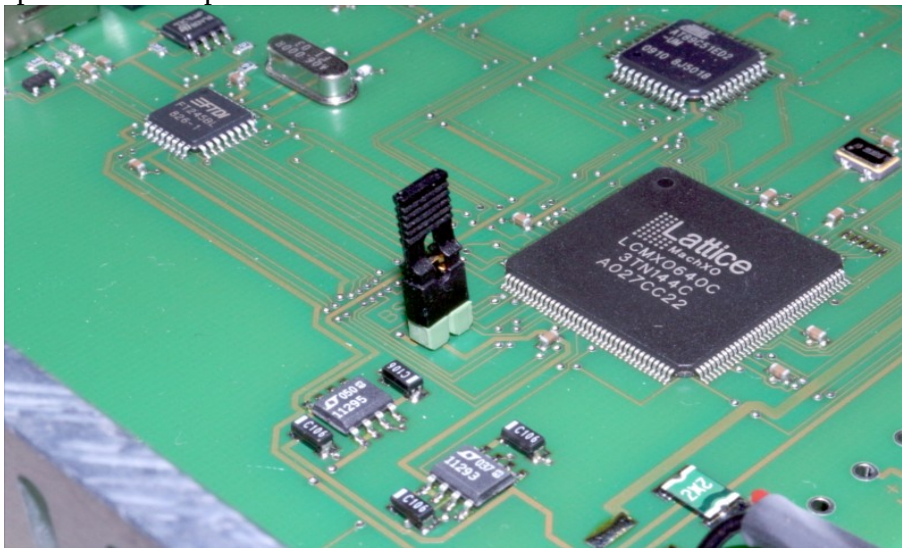


Download Microchip Flip Programmer

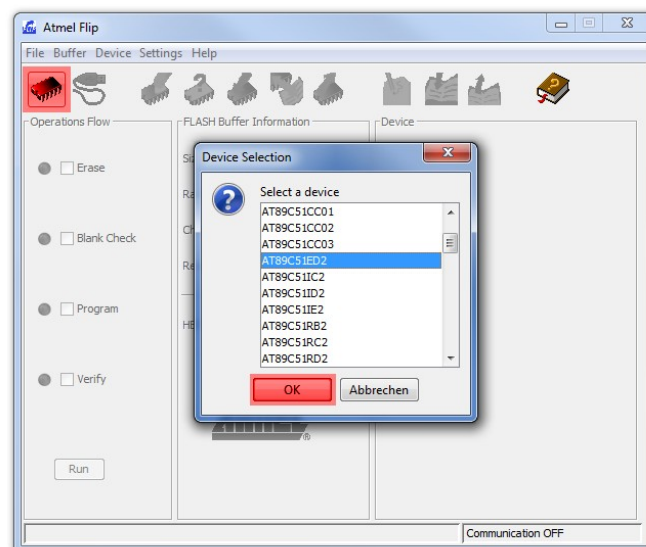
- Download the “Microchip Flip Programmer” from the following link.
<https://www.microchip.com/developmenttools/productdetails.aspx?partno=flip>
- To download the software, it is not necessary to register.
- After the download is completed, click on the “**Flip Installer.exe**” and follow the setup assistant.

Connection and configuration of the Microchip Flip Programmer

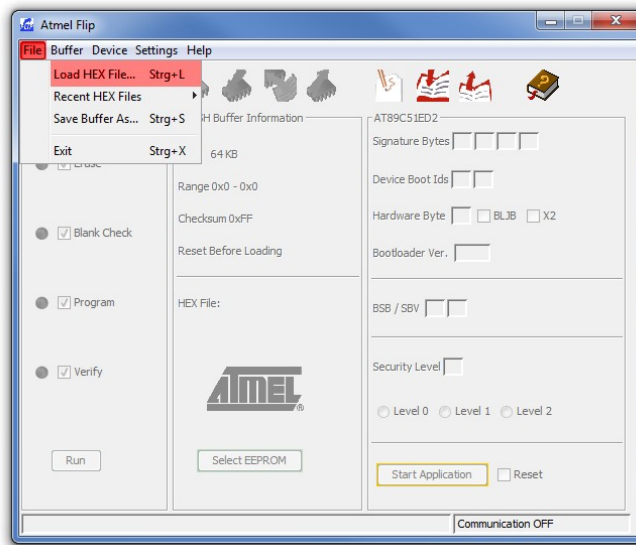
- Connect the MRC-1 with the serial cable to your computer.
- Plug the jumper onto the 2-pin connector.



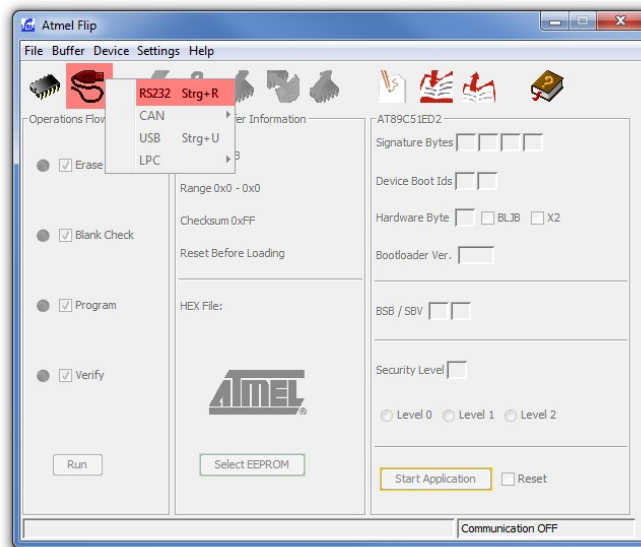
- Start the Microchip Flip Programmer.
- Click on the red coloured button on the left, choose the **AT89C51ED2** Device, click “OK”



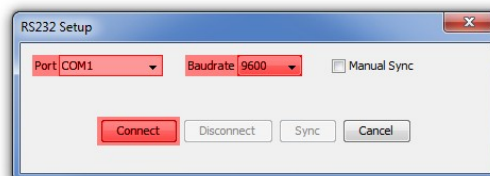
- Load the .hex file.



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

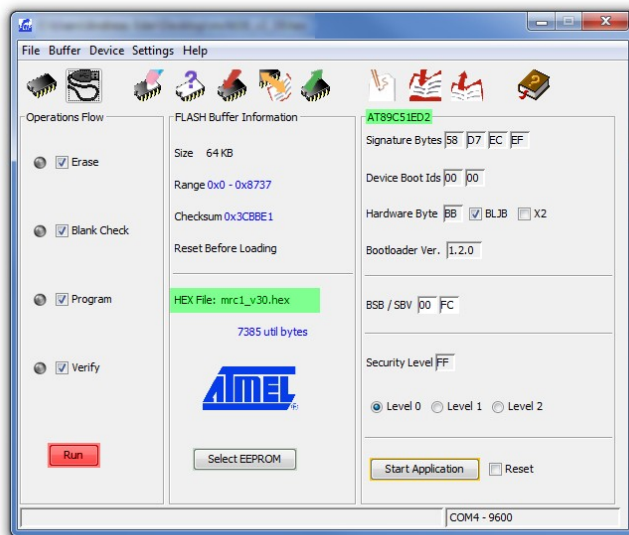


- Choose your **Com Port**, select **Baudrate 9600** and click **Connect**.

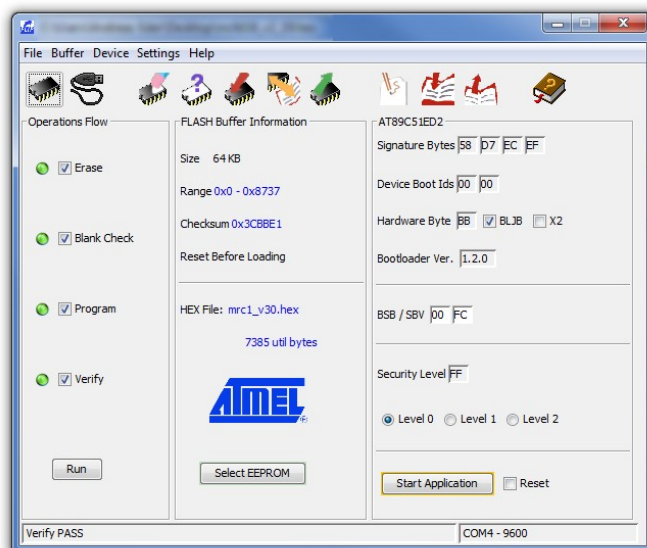


Programming

- 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 MRC-1 CPU Firmware is now updated

Do not forget to remove the jumper from the 2-pin connector.