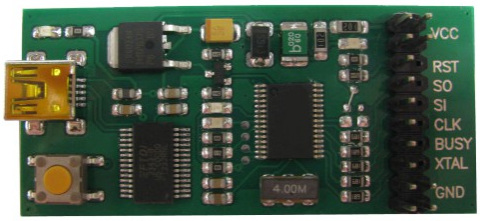
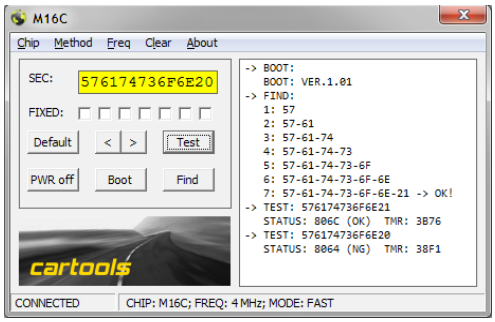



# M16C cracker

- Renesas (MITSUBISHI)
- R8C/M16C/M32C/R32C family

The device is designed to bypass and/or check the password for accessing **R8C/M16C/M32C/R32C** microcontrollers from Renesas (formerly Mitsubishi).




**Software, main menu:**

- **Chip**: select the desired one. If you select the wrong one, nothing will work;
- **Method** - **fast** / **slow**: if slow is selected, the processor is reset before each attempt;
- **Freq**: frequency at the XTAL output, if you suddenly need to set the frequency (processor on the board);
- **Clear**: clear the message window.

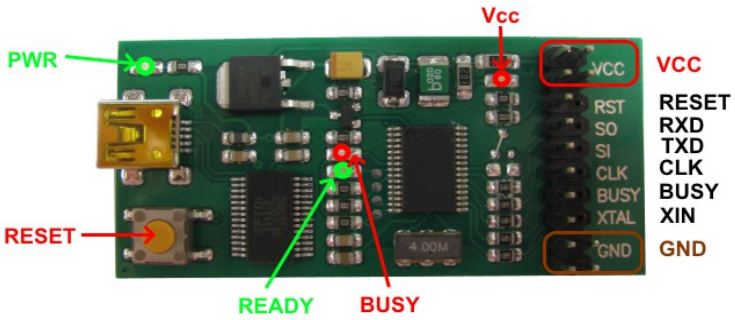
**Buttons:**

- **SEC**: actually, the bytes we are interested in;
- **FIXED**: when manually enumerating, you can fix specific bytes, for convenience;
- **Default**: reset the SEC window to 00..00 or FF..FF;
- **Test**: check the selected SEC;
- **PWR off**: turns off target power if it is powered on;
- **Boot**: request the processor bootloader version, can be used to check the connection with the processor.
- **Find**: button that starts the SEC search process.

**LEDs on the board:**

- **PWR**: powered by USB
- **READY**: the device is ready to accept a command
- **BUSY**: the device is working, the work cycle has started;
- **VCC**: power supply indicator for the processor being examined;

**RESET**: reset button, in case if something went wrong. This is the only way to interrupt the command execution before its final execution.




**Connection to the processor:**

- Use the SPI interface - pins **Reset** / **RxD** / **TxD** / **CLK** / **BUSY**.
- **XTAL** (**Xin**) is not required if connected in-circuit. Current consumption is limited to 200 mA, this is usually enough. Power is used from USB, 5v.

SEC search (**Find** command): the first 6 bytes are found quickly, it is enough to use the fast method. However, the last byte is selected by brute force with a processor restart before each attempt, regardless of the selected method (slow or fast).

SEC check (**Test** command): the specified SEC is checked. The device's response contains the authorization status and the time it took the processor to execute the request (based on which some conclusions are made...).

Not all R8C/M16C/M32C/R32C family processors can bypass protection using this method. This mainly applies to earlier versions. The result also does not depend on the bootloader version. However, it is possible to check the SEC on all processors or try to guess it using the brute force method.

Reading the datasheet for the processor being examined is highly recommended.