

## Interfacing FlashRunner 2.0 with RNSS\_RL78 devices

### Parameter List

#### TOOL0\_PULLUP

**TOOL0\_PULLUP** <YES|NO>

Pull-up on TOOL0 line for UART1 protocol. By default is enabled, can be disabled based on the board schematic.

#### FORCE\_CONNECT

**FORCE\_CONNECT** <YES|NO>

Connect to the device and erase the first block of the Code Flash to reset the On-Chip Oscillator to its maximum value. This can be used if the driver is no longer able to connect to the device after a programming due to a bad 0xC2 Option byte set.

### Commands List Flow-F

Memory types:

C → Code Flash

D → Data Flash

#### CONNECT

Power on and entry.

#### MASSERASE

**MASSERASE** <C|D>

Masserase command for Code or Data Flash.

#### BLOCKERASE

**BLOCKERASE** <C|D> <start\_addr> <size>

Blockerase for Code or Data Flash to erase a portion of the memory. The address and size have to be aligned with the block size: 1kB. If not, the driver aligns them automatically to the minimum area that matches the user request.

#### BLANKCHECK

**BLANKCHECK** <F|D> or **BLANKCHECK** <C|D> <start\_addr> <size>

Blankcheck command for Code or Data Flash - Auto or Manual mode allowed.

In Manual Mode the address and size have to be aligned with the block size: 1kB. If not, the driver aligns them automatically to the minimum area that matches the user request.

## PROGRAM

**PROGRAM** <C|D> or PROGRAM <C|D> <start\_addr> <size>

Program command for Code or Data Flash - Auto or Manual mode allowed.

In Manual Mode the address and size have to be aligned with the block size: 1kB. If not, the driver aligns them automatically to the minimum area that matches the user request.

## VERIFY

**VERIFY** <C|D> <R|S> or VERIFY <C|D> <R|S> <start\_addr> <size>

Verify command for Code or Data Flash - Auto or Manual mode allowed.

R – Normal verify with Read-Out method.

S - Checksum verify. The address and size have to be aligned with the block size: 1kB. If not, the driver aligns them automatically to the minimum area that matches the user request.

## CHECKSUM

**CHECKSUM** <C|D> <start\_addr> <size>

This command return the checksum value for the selected region.

The address and size have to be aligned with the block size: 1kB. If not, the driver aligns them automatically to the minimum area that matches the user request.

## SET\_SECURITY

**SET\_SECURITY** <security\_flag> <boot\_block\_cluster>  
<flash\_shield\_start\_address> <flash\_shield\_size>

This command protects the device using the security bytes.

security\_flag:

- bits {7, 6, 5, 3, 0}: set to 1.
- bit {4}: programming. 1 to enable, 0 to disable.
- bit {2}: block erase. 1 to enable, 0 to disable. If disabled the SECURITY\_RELEASE can't be performed.
- bit {1}: boot block cluster rewrite. 1 to enable, 0 to disable. If disabled the SECURITY\_RELEASE can't be performed.

boot\_block\_cluster: number of the boot block cluster.

flash\_shield\_start\_address, flash\_shield\_size: code flash shield, has to be aligned to the block size: 1kB. If not, the driver aligns them automatically to the minimum area that match

the user request. Can be used only in the Code area and it blocks the self-programming outside the range set. Optional, default value is the whole Code area.

## SECURITY\_RELEASE

This command release the security of the device. This operation leads to a masserase of the Code and Data Flash. The protection can be released only if the Erase and the Boot block cluster rewrite are not prohibited by the security settings.

## GET\_SIGNATURE

Returns the device Signature. It must be used before the CONNECT command.

## GET\_SECURITY

Returns the security bytes.

## CALC\_FRB\_CHKSUM

Calculate and print on the Terminal the checksum of the memories, based on the algorithm of the RL78 family, of the data on the FRB. It's not necessary to connect to the device.

## DISCONNECT

Power off and exit.

## Commands List Flow-G

*Notes:* the RL78:G10/G1M/G1N families support only two commands: the CRC check for the whole memory and the write-after-erase which allows to program the whole device after an erase. These two commands are used to implement the standard operations of FlashRunner 2.0.

Memory types:

C → Code Flash

## CONNECT

Power on and entry.

## MASSERASE

**MASSERASE** <C>

Masserase command for Code Flash. This command is useful only if you want to erase the device and not to reprogram it, because the program operation erases first the memory.

## BLANKCHECK

**BLANKCHECK** <C>

Blankcheck command for Code Flash. It is performed using a CRC calculation.

## PROGRAM

**PROGRAM** <C>

Program command for Code Flash.

Starting a program routine is preceded by an erase of the memory.

## VERIFY

**VERIFY** <C> <S>

Verify command for Code Flash.

S - CRC verify for the whole memory.

## CRC

**CRC** <C>

CRC calculation for the whole Code Flash.

## DISCONNECT

Power off and exit.