

Interfacing FlashRunner 2.0 with RNSS_RX devices

Commands List

RX100 Commands

Memory types:

F → Flash

E → Eeprom

CONNECT

Power on and entry. If the ID_CODE is programmed, the ID_CODE has to be provided by the `#TCSETPAR ID_CODE <id_code>`.

MASSERASE

MASSERASE <F|E> or **MASSERASE** <F|E> <start_addr> <size>

Masserase command for Flash and Eeprom - Auto or Manual mode allowed.

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

BLANKCHECK

BLANKCHECK <F|E> or **BLANKCHECK** <F|E> <start_addr> <size>

Blankcheck command for Flash and Eeprom - Auto or Manual mode allowed.

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

PROGRAM

PROGRAM <F|E> or **PROGRAM** <F|E> <start_addr> <size>

Program command for Flash and Eeprom - Auto or Manual mode allowed.

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

VERIFY

VERIFY <F|E> <R|S> or **VERIFY** <F|E> <R|S> <start_addr> <size>

Verify command for Flash and Eeprom - Auto or Manual mode allowed.

R – Normal verify with Read-Out method.

S – Checksum verify. Manual mode not allowed.

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

CHECKSUM

CHECKSUM <F|E>

This command return the checksum value for the selected region: Flash or Eeprom.

READ

READ <F|E> <start_addr> <size>

Read command for Flash and Eeprom - Manual mode allowed.

Read the memory and print the values into the terminal.

DUMP

DUMP <F|E> or **DUMP** <F|E> <start_addr> <size>

DUMP command for Flash and Eeprom - Auto or Manual mode allowed.

Read the memory and store the values into the binary file selected with *#TPSETDUMP*.

DISCONNECT

Power off and exit.

ACCESS_WINDOW

ACCESS_WINDOW <SET|GET|RESET> <start_block_addr> <end_block_addr>

Command to set, read or reset the Access Window. *start_block_addr* and *end_block_addr* are requested only for the GET command.

DETECT_DEVICE

DETECT_DEVICE <part_number_1> <part_number_2> <...>

Command to detect the device connected to the channel. It works inside a sub-family (i.e. RX130, RX111, ...). It is not always possible to distinguish between two devices because they may use the same real-chip, but with a different tested flash size. For this reason a check is made on the part numbers passed and if they are indistinguishable an error is returned. Family supported: RX130.

RX200 Commands

Memory types:

F → Flash

E → Eeprom

B → Boot

CONNECT

Power on and entry. If the ID_CODE is programmed, the ID_CODE has to be provided by the `#TCSETPAR ID_CODE <id_code>`.

MASSERASE

MASSERASE <F|E|B> or **MASSERASE** <F|E|B> <start_addr> <size>

Masserase command for Flash, Eeprom and Boot - Auto or Manual mode allowed.

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

BLANKCHECK

BLANKCHECK <F|E|B> or **BLANKCHECK** <F|E|B> <start_addr> <size>

Blankcheck command for Flash, Eeprom and Boot - Auto or Manual mode allowed.

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

PROGRAM

PROGRAM <F|E|B> or **PROGRAM** <F|E|B> <start_addr> <size>

Program command for Flash, Eeprom and Boot - Auto or Manual mode allowed.

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

VERIFY

VERIFY <F|E|B> <R|S> or **VERIFY** <F|E|B> <R|S> <start_addr> <size>

Verify command for Flash, Eeprom and Boot - Auto or Manual mode allowed.

R – Normal verify with Read-Out method.

S – Checksum verify. Manual mode not allowed.

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

CHECKSUM

CHECKSUM <F|E|B>

This command returns the checksum value for the selected region: Flash, Eeprom and Boot.

READ

READ <F|E|B> <start_addr> <size>

Read command for Flash, Eeprom and Boot - Manual mode allowed.

Read the memory and print the values into the terminal.

DUMP

DUMP <F|E|B> or **DUMP** <F|E|B> <start_addr> <size>

DUMP command for Flash, Eeprom and Boot - Auto or Manual mode allowed.

Read the memory and store the values into the binary file selected with **#TPSETDUMP**.

DISCONNECT

Power off and exit.

ACCESS_WINDOW

ACCESS_WINDOW <SET|GET|RESET> <start_block_addr> <end_block_addr>

Command to set, read or reset the Access Window. **start_block_addr** and **end_block_addr** are requested only for the GET command.

Command available for: RX23T.

RX600 Commands

Memory types:

F → Code Flash

D → Data Flash

B → User Boot

O → Option Bytes

CONNECT

Power on and entry. If a "PROHIBIT_CONNECTION" command has been executed it's no longer possible to connect with a serial programmer. If the ID_CODE in BOOT_MODE has been enable, the ID_CODE has to be provided in the #TCSETPAR ID_CODE <id_code>.

MASSERASE

MASSERASE <C|F|D|B> or **MASSERASE** <F|D|B> <start_addr> <size>

Masserase command for Code Flash, Data Flash and User Boot area - Auto or Manual mode allowed.

C – Chip Erase. It clears all Areas and the Option Byte Settings.

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

When an area for which the lock bit function is disabled and the lock bit has been set is erased, the lock-bit setting is cleared. If lock bit is enabled an error is returned.

If block erase commands are prohibited, in Manual an error is returned.

If TM function is enabled an error is returned if that area is requested.

BLANKCHECK

BLANKCHECK <F|D|B> or **BLANKCHECK** <F|D|B> <start_addr> <size>

Blankcheck command for Code Flash, Data Flash and User Boot area - Auto or Manual mode allowed.

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

If TM function is enable an error is returned if that area is requested.

PROGRAM

PROGRAM <F|D|B|O> or **PROGRAM** <F|D|B|O> <start_addr> <size>

Program command for Code Flash, Data Flash, User Boot Area and Option Bytes - Auto or Manual mode allowed.

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

When TM function is enabled an error is returned if that area is requested.

If programming commands are prohibited, this command can't be used.

If lock-bits are enabled, the blocked blocks can't be programmed.

VERIFY

VERIFY <F|D|B|O> <R|S> or **VERIFY** <F|D|B|O> <R|S> <start_addr> <size>

Verify command for Code Flash, Data Flash, User Boot area and Option Bytes - Auto or Manual mode allowed.

R – Normal verify with Read-Out method.

S – Checksum verify. Manual mode not allowed. Method not allowed for Option Bytes. If Trusted Memory functionality is enabled, that area is ignored. If the command is issued for an area with erased block, the result is undefined (device specifics).

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

If TM function is enabled an error is returned if that area is requested.

CHECKSUM

CHECKSUM <F|D|B>

This command returns the checksum value for the selected region: Code Flash, Data Flash or User Boot area.

If TM function is enabled an error is returned if that area is requested.

If the command is issued in Data Flash with a portion non programmed, the returned value is random.

READ

READ <F|D|B> <start_addr> <size>

Read command for Code Flash, Data Flash and User Boot area - Manual mode allowed.

Read the memory and print the values into the terminal.

This command can't be used if reads commands are prohibited.

If TM function is enabled, 0x00 is returned if that area is requested.

If the command is issued in Data Flash with a portion non programmed, the returned value is random.

DUMP

DUMP <F|D|B> <start_addr> <size>

DUMP command for Code Flash, Data Flash and User Boot area - Auto or Manual mode allowed.

Read the memory and store the values into the binary file selected with #TPSETDUMP.

This command can't be used if reads commands are prohibited.

If TM function is enabled, 0x00 is returned if that area is requested.

If the command is issued in Data Flash with a portion non programmed, the returned value is random.

DISCONNECT

Power off and exit.

Commands List not standard

GET_SIGNATURE

Returns the device signature.

ENDIAN_SETTINGS_SET

ENDIAN_SETTINGS_SET <BIG|LITTLE>

This command sets the endianness of the device. The default value is *LITTLE ENDIAN*. The user can change this parameter if the firmware programmed needs this.

TM_SETTINGS_SET

TM_SETTINGS_SET; <TMINF>

This command sets the Trusted Memory of the device. *TMINF* is used to store codes for identification of the programs stored in the TM area.

TMINF: example 01234567

OFS_SETTINGS_SET

OFS_SETTINGS_SET <ofs0> <ofs1>

This command sets the values of the *OFS0* and *OFS1* registers that set optional settings of the device.

LOCKBIT

LOCKBIT <SET|ENABLE|DISABLE> <lockbits>

The lock-bit functionality prohibit the erasure and programming of the blocks selected in the Code Flash. By default the protection is not active in serial programming boot mode (the one used by FlashRunner), but it has to be enabled at each new connection. It is meant to protect the flash blocks from erroneous programming by the routine application programmed in the device.

SET: set the lock bit for the blocks inside the *start_addr* and *size* passed to the command. This command cannot be used to clear a lock bit that has already been set. Canceling the setting of a lock bit requires erasure of the target block. The syntax is the same that can be taken with the "gos" command using Renesas' PG-FP6. Example: AFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF, will block blocks 6 and 4 of the flash. The number of bytes depends upon the number of blocks of the memory.

RX64M 17 bytes, Rx621/RX62N 5 bytes.

ENABLE: enable the lock-bit functionality also in serial programming. The command doesn't require other parameters.

DISABLE: disable the lock-bit functionality in serial programming. The command doesn't require other parameters.

PROTECTION_SETTINGS_SET

PROTECTION_SETTINGS_SET <protection_byte>

This command can't be used if the ID in *BOOT_MODE* is enabled.

Set protection indicated by the *protection_byte*. A protection enabled can't be removed writing again with this command. A Configuration Clear has to be issued.

protection_byte:

- bit {7}: set to 0 to prohibit read operations.
- bit {6}: set to 0 to prohibit programming operations.
- bit {5}: set to 0 to prohibit block erase operations.
- bit {4:0}: set to 1.
- example: 0xBF, prohibit programming operations

ID_CODE_SET

ID_CODE_SET <OCD|BOOT_MODE> <id_code>

Set the ID_CODE for the device.

1. OCD: set the ID only for the On-Chip Debugger (no requested in connection by the FlashRunner). Can't be used when the BOOT_MODE ID is set or when block erase commands are prohibited.
2. BOOT_MODE: set the ID for the OCD and for the BOOT MODE. After this command the ID is required in connection and has to be provided with the *TCSETPAR ID_CODE <id_code>* parameter. The command can't be used if block erase, programming or read commands are prohibited.

id_code: is a 16 bytes code in the format 000102030405060708090A0B0C0D0E0F. The order is: ID code 1 - ID code 2 - ... - ID code 16

PROHIBIT_CONNECTION

This command prohibit the connection by a serial programmer to the device. This operation is irreversible.

GET_DEVICE_STATUS

This command read and prints the status of the device: LockBits, ID code, Endianess ...

Parameters List

RX100 Parameters

ID_CODE

ID_CODE <id_code>

The ID_CODE programmed inside the device at the address 0xFFFFFA0. The format is 00112233445566778899AABBCCDDEEFF. The order is: Control Code - ID code 1 - ID code 2 - ... - ID code 15. The string *FORCE_CONNECTION* can be used as a special value to enter the device in some case explained below:

- If the ID_CODE is not programmed but the memory is not blank, the device erases itself automatically (RX130) or enter in Erase State (RX111-RX113) to be erase by the FlashRunner; in this latter case the special id code *FORCE_CONNECTION* has to be used.
- If the ID_CODE is programmed with Control Code 0x45, it is possible to use *FORCE_CONNECTION* to enter anyway, but the device is going to be erase.

- If the ID_CODE is programmed with Control Code 0x52, the correct id code MUST be provided in order to enter.
- A special ID_CODE starting with 0x52 can be used to block permanently the access to the device. The value can be retrieved from the device Hardware Manual.

TXD_PULLUP

TXD_PULLUP <YES|NO>

This parameter can be used to add a pull-up on the TXD line or FINE line. By default it is enabled, but it can be disabled if the customer's board configuration requires it.

RX200 Parameters

ID_CODE

ID_CODE <id_code>

The ID_CODE programmed inside the device at the address 0xFFFFFA0. The format is 00112233445566778899AABBCCDDEEFF. The order is: Control Code - ID code 1 - ID code 2 - ... - ID code 15. The string *FORCE_CONNECTION* can be used as a special value to enter the device in some case explained below:

- If the ID_CODE is not programmed, the device erases itself automatically.
- If the ID_CODE is programmed with Control Code 0x45, it is possible to use *FORCE_CONNECTION* to enter anyway, but the device is going to be erase.
- If the ID_CODE is programmed with Control Code 0x52, the correct id code MUST be provided in order to enter.
- A special ID_CODE starting with 0x52 can be used to block permanently the access to the device. The value can be retrieved from the device Hardware Manual.

TXD_PULLUP

TXD_PULLUP <YES|NO>

This parameter can be used to add a pull-up on the TXD line or FINE line. By default it is enabled, but it can be disabled if the customer's board configuration requires it.

RX600 Parameters

ID_CODE

ID_CODE <id_code>

The ID_CODE programmed inside the device at the address 0xFFFFFA0 (RX621-RX62N-RX631-RX63N-RX62T-RX62G), 0x00120050 (RX64M) or 0xFE7F5D50 (RX65N-RX651). The format is 00112233445566778899AABBCCDDEEFF.

For RX64M and RX65N-RX651 the order is: ID code 1 - ID code 2 - ... - ID code 16.

For RX621-RX621N-RX631-RX63N-RX62T-RX62G the order is: Control Code - ID code 1 - ID code 2 -

... - ID code 15. The string *FORCE_CONNECTION* can be used as a special value to enter the device in some case explained below:

- If the ID_CODE is not programmed, the device erases itself automatically.
- If the ID_CODE is programmed with Control Code 0x45, it is possible to use *FORCE_CONNECTION* to enter anyway, but the device is going to be erased.
- If the ID_CODE is programmed with Control Code 0x52, the correct id code MUST be provided in order to enter.
- A special ID_CODE starting with 0x52 can be used to block permanently the access to the device. The value can be retrieved from the device Hardware Manual.