

## Differences between the CA78K0R compiler version and the CC-RL compiler version

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This document contains notes and points for caution on using the EEPROM Emulation Library Pack02 Ver.1.01 for the CC-RL compiler (hereinafter abbreviated as "EEL Pack02 V1.01 for CC-RL") and specifications different from EEPROM Emulation Library Pack02 Ver.1.01 for the CA78K0R compiler (hereinafter referred to as "EEL Pack02 V1.01 for CA78K0R"). Please read this document before use.

You can understand the functionality of EEL Pack02 V1.01 for CC-RL by reading this document and the user's manual of EEL Pack02 V1.01 for CA78K0R.

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## 1. Notes

- Each segment (FDL\_CODE, FDL\_CNST, EEL\_CODE, EEL\_CNST) of EEPROM Emulation Library Pack02 Ver.1.01 for the CC-RL compiler for the RL78 family cannot be allocated to extend across the 64-Kbyte boundary. Be sure to allocate segments so that they do not extend across the 64-Kbyte boundary.
- When using an assembler of the CC-RL compiler from Renesas Electronics, the hexadecimal prefix representation (0x..) cannot be mixed together with the suffix representation (..H). Specify the representation method by editing the symbol definition in pfdl.inc to match the user environment.

### fdl.inc

```
;__FDL_INC_BASE_NUMBER_SUFFIX.SET 1
```

When symbol "\_\_FDL\_INC\_BASE\_NUMBER\_SUFFIX" is not defined (initial state), the prefix representation will be selected.

### fdl.inc

```
__FDL_INC_BASE_NUMBER_SUFFIX.SET 1
```

When symbol "\_\_FDL\_INC\_BASE\_NUMBER\_SUFFIX" is defined, the suffix representation will be selected.

## 2. Details on Functions Related with Flash Memory

Though there are no changes in the features of each function of the EEL, the arguments or type declarations of function call have been changed. Therefore, the changed contents of each function are shown in the following pages.

## 2.1 FDL\_Init

### (1) Function Prototype

RENESAS CA78K0R:

```
fdl_status_t __far FDL_Init(const __far fdl_descriptor_t* descriptor_pstr)
```

RENESAS CC-RL:

```
fdl_status_t __far FDL_Init(const __far fdl_descriptor_t* descriptor_pstr)
```

### (2) Argument

	<i>Parameter Passing</i>	
	<i>C Language</i>	<i>Assembler Language</i>
<b>RENESAS (CA)</b>	const __far fdl_descriptor_t* descriptor_pstr	AX(0-15), C(16-23)
<b>RENESAS (CC-RL)</b>	const __far fdl_descriptor_t* descriptor_pstr	<b>DE(0-15), A(16-23)</b>

The structure fdl\_descriptor\_t :

	<i>C Language</i>	<i>Assembler Language</i>
<b>RENESAS (CA)</b>	typedef struct { fdl_u16 eel_pool_bytes_u16; fdl_u16 fdl_pool_bytes_u16; fdl_u16 fdl_delay_u16; fdl_u08 eel_pool_blocks_u08; fdl_u08 fdl_pool_blocks_u08; fdl_u08 fx_MHz_u08; fdl_u08 wide_voltage_mode_u08; } fdl_descriptor_t;	
<b>RENESAS (CC-RL)</b>	typedef struct { fdl_u16 eel_pool_bytes_u16; fdl_u16 fdl_pool_bytes_u16; fdl_u16 fdl_delay_u16; fdl_u08 eel_pool_blocks_u08; fdl_u08 fdl_pool_blocks_u08; fdl_u08 fx_MHz_u08; fdl_u08 wide_voltage_mode_u08; } fdl_descriptor_t;	

### (3) Return value

	<i>Parameter types</i>	
	<i>C Language</i>	<i>Assembler Language</i>
<b>RENESAS (CA)</b>	fdl_status_t	C
<b>RENESAS (CC-RL)</b>	fdl_status_t	<b>A</b>

### (4) Destructed Registers

	<i>Destructed Registers</i>
<b>RENESAS (CA)</b>	AX, B
<b>RENESAS (CC-RL)</b>	<b>X, BC, DE, HL</b>

## 2.2 FDL\_Open

(1) Function Prototype

RENESAS CA78K0R:

void \_\_far FDL\_Open(void)

RENESAS CC-RL:

void \_\_far FDL\_Open(void)

(2) Argument

None

(3) Return value

None

(4) Destructed Registers

	<i>Destructed Registers</i>
<b>RENESAS (CA)</b>	None
<b>RENESAS (CC-RL)</b>	<b>AX</b>

## 2.3 FDL\_Close

(1) Function Prototype

RENESAS CA78K0R:

void \_\_far FDL\_Close(void)

RENESAS CC-RL:

void \_\_far FDL\_Close(void)

(2) Argument

None

(3) Return value

None

(4) Destructed Registers

	<i>Destructed Registers</i>
<b>RENESAS (CA)</b>	None
<b>RENESAS (CC-RL)</b>	<b>C</b>

## 2.4 EEL\_Init

(1) Function Prototype

RENESAS CA78K0R:

eel\_status\_t \_\_far EEL\_Init(void);

RENESAS CC-RL:

eel\_status\_t \_\_far EEL\_Init(void);

(2) Argument

None

(3) Return value

	<i>Parameter types</i>	
	<i>C Language</i>	<i>Assembler Language</i>
<b>RENESAS (CA)</b>	eel_status_t	C
<b>RENESAS (CC-RL)</b>	eel_status_t	<b>A</b>

(4) Destructured Registers

	<i>Destructured Registers</i>
<b>RENESAS (CA)</b>	None
<b>RENESAS (CC-RL)</b>	<b>X, BC, D, HL</b>

## 2.5 EEL\_Open

(1) Function Prototype

RENESAS CA78K0R:

void \_\_far EEL\_Open(void)

RENESAS CC-RL:

void \_\_far EEL\_Open(void)

(2) Argument

None

(3) Return value

None

(4) Destructured Register

None

## 2.6 EEL\_Close

(1) Function Prototype

RENESAS CA78K0R:

void \_\_far EEL\_Close(void)

RENESAS CC-RL:

void \_\_far EEL\_Close(void);

(2) Argument

None

(3) Return value

None

(4) Destructed Registers

	<i>Destructed Registers</i>
<b>RENESAS (CA)</b>	None
<b>RENESAS (CC-RL)</b>	<b>A</b>

## 2.7 EEL\_Execute

### (1) Function Prototype

RENESAS CA78K0R:

```
void __far EEL_Execute(__near eel_request_t* request_pstr)
```

RENESAS CC-RL:

```
void __far EEL_Execute(__near eel_request_t* request_pstr)
```

### (2) Argument

	<i>Parameter Passing</i>	
	<i>C Language</i>	<i>Assembler Language</i>
<b>RENESAS (CA)</b>	__near eel_request_t* request_pstr	AX(0-15)
<b>RENESAS (CC-RL)</b>	__near eel_request_t* request_pstr	AX(0-15)

The structure of request\_pstr :

	<i>C Language</i>	<i>Assembler Language</i>
<b>RENESAS (CA)</b>	typedef struct { __near eel_u08* address_pu08; eel_u08 identifier_u08; eel_command_t command_enu; eel_status_t status_enu; } eel_request_t;	; byte index within EEL-request structure ;----- EEL_REQUEST_ADDR EQU (000H) EEL_REQUEST_IDENTIFIER EQU (002H) EEL_REQUEST_COMMAND EQU (003H) EEL_REQUEST_ERROR EQU (004H)
<b>RENESAS (CC-RL)</b>	typedef struct { __near eel_u08* address_pu08; eel_u08 identifier_u08; eel_command_t command_enu; eel_status_t status_enu; } eel_request_t;	; byte index within EEL-request structure ;----- EEL_REQUEST_ADDR <b>.EQU</b> (000H) EEL_REQUEST_IDENTIFIER <b>.EQU</b> (002H) EEL_REQUEST_COMMAND <b>.EQU</b> (003H) EEL_REQUEST_ERROR <b>.EQU</b> (004H)

### (3) Return value

None

### (4) Destructed Registers

	<i>Destructed Registers</i>
<b>RENESAS (CA)</b>	AX
<b>RENESAS (CC-RL)</b>	<b>AX, BC, DE, HL</b>

## 2.8 EEL\_Handler

- (1) Function Prototype  
 RENESAS CA78K0R:  
 void \_\_far EEL\_Handler(void)  
 RENESAS CC-RL:  
 void \_\_far EEL\_Handler(void);
- (2) Argument  
 None
- (3) Return value  
 None
- (4) Destructed Registers

	<i>Destructed Registers</i>
<b>RENESAS (CA)</b>	None
<b>RENESAS (CC-RL)</b>	<b>AX, BC, DE, HL</b>

## 2.9 EEL\_GetSpace

- (1) Function Prototype  
 RENESAS CA78K0R:  
 eel\_status\_t \_\_far EEL\_GetSpace(\_\_near eel\_u16\* space\_pu16)  
 RENESAS CC-RL:  
 eel\_status\_t \_\_far EEL\_GetSpace(\_\_near eel\_u16\* space\_pu16)
- (2) Argument

	<i>Parameter Passing</i>	
	<i>C Language</i>	<i>Assembler Language</i>
<b>RENESAS (CA)</b>	__near eel_u16* space_pu16	AX(0-15)
<b>RENESAS (CC-RL)</b>	__near eel_u16* space_pu16	AX(0-15)

- (3) Return value

	<i>Parameter types</i>	
	<i>C Language</i>	<i>Assembler Language</i>
<b>RENESAS (CA)</b>	eel_status_t	C
<b>RENESAS (CC-RL)</b>	eel_status_t	<b>A</b>

- (4) Destructed Registers

	<i>Destructed Registers</i>
<b>RENESAS (CA)</b>	AX
<b>RENESAS (CC-RL)</b>	<b>X, C, HL</b>



## 2.10 EEL\_GetVersionString

### (1) Function Prototype

RENESAS CA78K0R:

\_\_far eel\_u08\* \_\_far EEL\_GetVersionString(void)

RENESAS CC-RL:

\_\_far eel\_u08\* \_\_far EEL\_GetVersionString(void)

### (2) Argument

None

### (3) Return value

	<i>Parameter types</i>	
	<i>C Language</i>	<i>Assembler Language</i>
<b>RENESAS (CA)</b>	__far eel_u08*	BC(0-15), DE(16-31)
<b>RENESAS (CC-RL)</b>	__far eel_u08*	<b>DE(0-15), A(16-23)</b>

### (4) Destructured Registers

None

- Format of the library version information.  
Each string is ASCII code.

"NM..MTTTCCCCCVVVV"

"N" means library name

'D' = FDL

"M..M" means family name of microcontroller.

'RL78' = RL78

"TTT" means type number.

'TXX' = TypeXX

"CCCCC"(5characters) means compiler information. (In case of CC-RL:"CCCCC" (6characters))

'RXXG' = RENESAS C Compiler **CA78K0R** VX.XX supports all memory models.

**'LXXG' = RENESAS C Compiler CC-RL VX.XX.0X supports all memory models.**

"VVVV" means library version.

'VXXX' = Version X.XX(release version)

Example)

"ERL78T01**R**110GV100" means "EEL RL78 Type02 V1.00 for RENESAS C Compiler **CA78K0R** V1.10".

"ERL78T01**L**1000GV100" means "EEL RL78 Type02 V1.00 for RENESAS C Compiler **CC-RL** V1.00.00".

### 3. Sizes of the ROM and Stack Used by the EEPROM Emulation Library

The following table shows the code size of the user's ROM and stack size used by EEL Pack02 V1.01 for CC-RL.

Table 3-1 Sizes of the ROM and Stack Used by the EEPROM Emulation Library

	Maximum size (byte)
Library size(ROM)	3400
Stack size	64

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