To our customers,

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April 1st, 2010
Renesas Electronics Corporation

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(2012.4)

CUSTOMER NOTIFICATION

ZUD-CD-07-0139 (1/12)

August 30, 2007

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QB-78K0KX2

(Control Code: B, C, D, E, F)

Operating Precautions

Be sure to read this document before using the product.

Operating Precautions for QB-78K0KX2

This document describes restrictions applicable only to the emulator and restrictions that are planned for correction in the emulator.

Refer to the following documents for the restrictions in the target device.

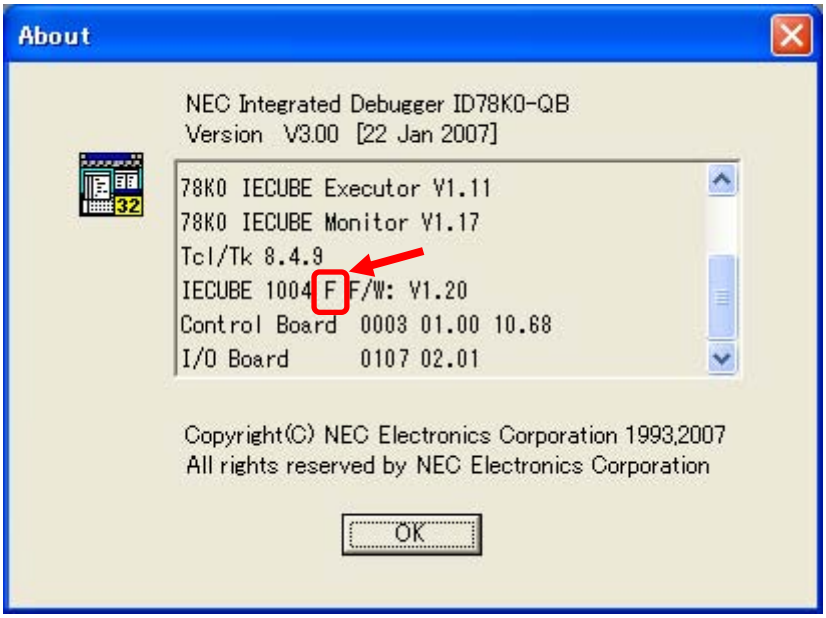
- User's manual of target device
- Restrictions notification document for target device

Also refer to the user's manual of the emulator for cautions on using the emulator.

1. Product Version

Control Code[Note]	Emulation CPU	Remark
B	FPGA (equivalent to μPD78F0547 1.0)	–
C	μPD78F0547 1.0	–
D	μPD78F0547 2.0	Specification changes for option byte, etc.
E	μPD78F0547 2.0	–
F	μPD78F0547A 1.1	–

Note The "control code" is the second digit from the left in the 10-digit serial number.
If the product has been upgraded, the control code can be checked by selecting [About] from the [Help] menu while the ID78K0-QB is running.
"X" in version information "IECUBE **** X F/W: V*.**" is the control code.



2. Product History

No.	Bugs and Changes/Additions to Specifications	Control Code				
		B	C	D	E	F
1	Bug that occurs when a software break and an interrupt conflict	×	○	○	○	○
2	A peripheral macro operates for one clock when an SFR that generates retries is accessed during a break.	×	○	○	○	○
3	The program operation may be illegal when an instruction is re-executed after a software break.	×	○	○	○	○
4	The A/D conversion result may be invalid	×	○	○	○	○
5	Bug in subclock settings	×	○	○	○	○
6	Support of specification changes for option byte	×	×	○	○	○
7	Restrictions on power-on-clear (POC) function	Permanent restriction				
8	Internal ROM area is overwritten during program execution	×	×	×	○	○
9	Support for emulation for boot swap function	–	–	–	–	○
10	Self-programming function does not operate normally	×	×	×	×	○
11	Bug in low-voltage detector (LVI) function	×	×	×	×	○

×: Applicable, ○: Not applicable or already corrected (specification added)

3. Details of Bugs and Added Specifications

No. 1 Bug that occurs when a software break and an interrupt conflict

[Description]

When a software break and an interrupt conflict, the position of the PC becomes invalid.

[Workaround]

Use a hardware break.

[Correction]

This issue has been corrected in products with control code C and later.

No. 2 A peripheral macro operates for one clock when an SFR that generates retries is accessed during a break.

[Description]

When an SFR (special function register) that generates retries upon read is accessed during a break while peripheral breaks have been enabled, a peripheral macro operates for one clock.

Example:

Each time the SFR window or Watch window, which generates retries, is refreshed, the counter of the timer SFR is counted up.

[Workaround]

There is no workaround.

[Correction]

This issue has been corrected in products with control code C and later.

No. 3 The program operation may be illegal when an instruction is re-executed after a software break.

[Description]

If a software break is set to an instruction of 2 bytes or more and the 2nd byte of the instruction code is set to C0H, the values in the stack area become invalid after the break. As a result, if the instruction is re-executed as is, the program operation may be illegal.

[Workaround]

Use a hardware break.

[Correction]

This issue has been corrected in products with control code C and later.

No. 4 The A/D conversion result may be invalid.

[Description]

The A/D conversion result may be invalid.

[Workaround]

There is no workaround.

[Correction]

This issue has been corrected in products with control code C and later.

No. 5 Bug in subclock settings

[Description]

The XT1 oscillation mode is not set even if XTSTART is set to 1.

If values corresponding to “Setting prohibited” in the following table are set, the subclock does not oscillate normally and thus the operation becomes illegal.

[Workaround]

When XTSTART is set to 1, be sure to clear EXCLKS to 0 and set OSCSELS to 1.

PCC	OSCCTL		Operating Mode of Subsystem Clock Pin	P123/XT1 Pin	P124/XT2/EXCLKS Pin
Bit 6	Bit 5	Bit 4			
XTSTART	EXCLKS	OSCSELS			
0	0	0	I/O port mode	I/O port	
0	0	1	XT1 oscillation mode	Crystal resonator connection	
0	1	0	I/O port mode	I/O port	
0	1	1	External clock input mode	I/O port	External clock input
1	0	1	XT1 oscillation mode	Crystal resonator connection	
1	Other than above		Setting prohibited		

[Correction]

This issue has been corrected in products with control code C and later.

After correction, the XT1 oscillation mode is set by setting XTSTART to 1, regardless of the values set to EXCLKS and OSCSELS.

No. 6 Support of specification changes for option byte

[Description]

The POC mode (POCMODE) of the option byte is supported in products with control code D and later.

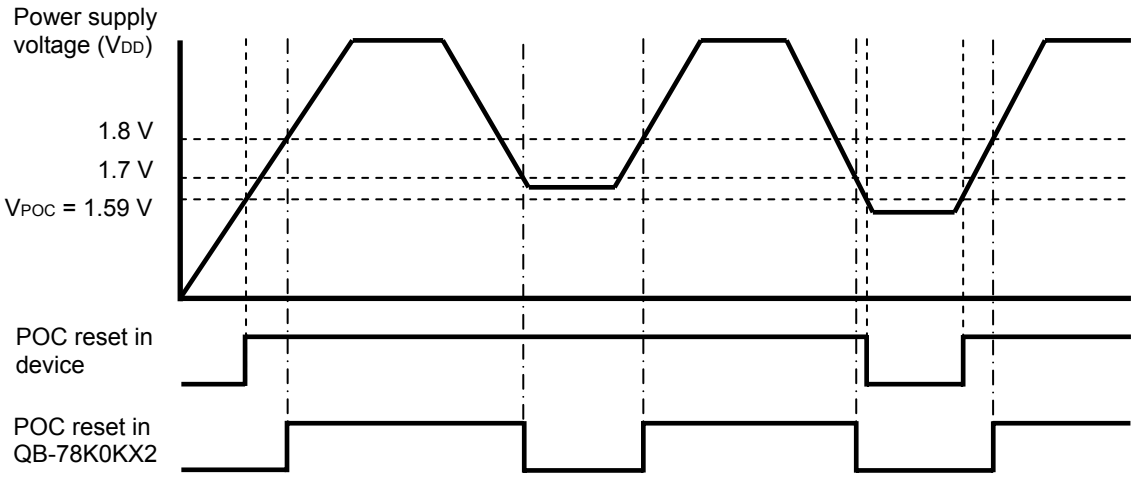
No. 7 Restrictions on power-on-clear (POC) function

[Description]

The POC detection voltage differs between the QB-78K0KX2 and the device.

(1) In 1.59 V POC mode (option byte: POCMODE = 0)

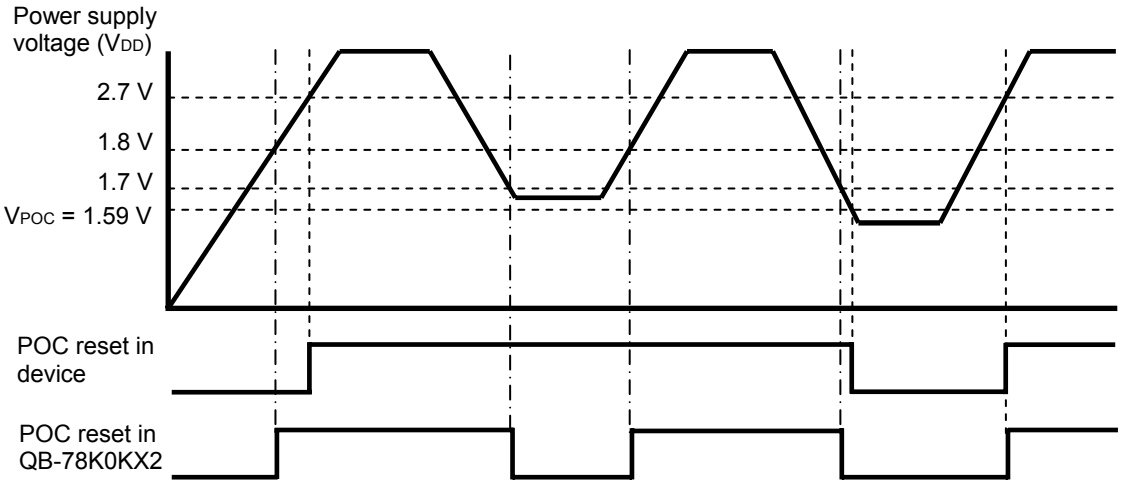
- Device: An internal reset signal is generated at power application, and the reset state is released when the power supply voltage (V_{DD}) exceeds the detection voltage (V_{POC} = 1.59 V ±0.15 V).
  The power supply voltage (V_{DD}) and detection voltage (V_{POC} = 1.59 V ±0.15 V) are compared, an internal reset signal is generated when V_{DD} drops lower than V_{POC} ($V_{DD} < V_{POC}$), and the reset state is released when V_{DD} becomes V_{POC} or higher ($V_{DD} \geq V_{POC}$).
- QB-78K0KX2: An internal reset signal is generated at power application, and the reset state is released when the power supply voltage (V_{DD}) exceeds 1.80 V.
  An internal reset signal is generated when V_{DD} drops lower than 1.70 V (V_{DD} < 1.70 V), and the reset state is released when V_{DD} becomes 1.80 V or higher ($V_{DD} \geq$ 1.80 V).



(2) In 2.7 V/1.59 V POC mode (option byte: POCMODE = 1)

- Device: An internal reset signal is generated at power application, and the reset state is released when the power supply voltage (V_{DD}) exceeds V_{POC} (power detection voltage at power application; V_{POC} = 2.7 V ±0.2V).
  The power supply voltage (V_{DD}) and detection voltage (V_{POC} = 1.59 V ±0.15 V) are compared, an internal reset signal is generated when V_{DD} drops lower than V_{POC} ($V_{DD} < V_{POC}$), and the reset state is released when V_{DD} becomes 2.7 V or higher ($V_{DD} \geq$ 2.7 V).

- QB-78K0KX2: An internal reset signal is generated at power application, and the reset state is released when the power supply voltage (V_{DD}) exceeds 1.80 V.
  An internal reset signal is generated when the detection voltage (V_{POC} = 1.59 V ±0.15 V) < V_{DD} < 1.70 V, and the reset state is released when V_{DD} becomes 1.80 V or higher ($V_{DD} \geq$ 1.80 V).
  If the power supply voltage (V_{DD}) drops to a level of the detection voltage (V_{POC} = 1.59 V ±0.15 V), the reset state is released the next time the power supply voltage (V_{DD}) exceeds V_{POC} (power detection voltage at power application; V_{POC} = 2.7 V ±0.2 V).



[Workaround]

There is no workaround. Regard this issue as a permanent restriction.

No. 8 Internal ROM area is overwritten during program execution

[Description]

Data in the internal ROM area may be overwritten if the Source window or Assemble window is open during program execution. As a result, an unexpected fail-safe break (such as Write Protect Break or Non Map Break) may occur.

[Workaround]

There is no workaround.

[Correction]

This issue has been corrected in products with control code E and later.

No. 9 Support for emulation for boot swap function

[Description]

Emulation for the boot swap function is now supported. When using this function, use the tools in the following combinations.

- ID78K0-QB: V3.00 or later
- QB-78K0LX2: Control code F or later

No. 10 Self-programming function does not operate normally

[Description]

If a parameter other than “BANK0” is set to the BANK register, self-programming cannot be performed normally. If “BANK5” is set to the BANK register and then “call !8100” is performed, for example, the program branches to address 58100H.

[Workaround]

Set “BANK0” to the BANK register before performing self-programming.

[Correction]

This issue has been corrected in products with control code F and later.

No. 11 Bug in low-voltage detector (LVI) function

[Description]

When a reset input by the low-voltage detector (LVI) conflicts with write to a register that sets the LVI operation (LVIM) or the low-voltage detection level selection register (LVIS), the write-enabled bits of that register may be set to 1. As a result, the following three phenomena occur.

- The LVI cannot be stopped.
- The voltage detection may change from VDD to EXLVI pin input.
- The voltage detected by the LVI may be lower than the set value or the default value.

These phenomena do not occur in cases other than the LVI reset. This issue does not apply when the LVI is not used or used as an interrupt source.

[Workaround]

As a workaround for this issue, implement the two following software measures.

(1) Do not write to the LVIM and LVIS registers after the LVI is set as a reset source.

(2) Make sure that bit 7 (LVION) of LVIM is 0 before setting the LVIM or LVIS register. If LVION is 1, do not set LVIM and LVIS.

[Correction]

This issue has been corrected in products with control code F and later.

4. Changes in User’s Manual

The following have been changed in the *QB-78K0KX2 In-Circuit Emulator User’s Manual* (document number: U17341EJ5V0UM).

4.1 Addition of target devices

➢ Location 1

Table 1-3. Devices Subject to Emulation by 78K0/Kx2 on page 12

➢ Description 1

Device Name (Common Name)	Package	Device Name
		Flash Memory Version
78K0/KC2	38-pin SSOP (MC)	μPD78F0511, μPD78F0512, μPD78F0513, μPD78F0513D

- Location 2

  Under **Table 1-3. Devices Subject to Emulation by 78K0/Kx2** on page 12

- Description 2

  Remark Specification-expanded products (A products) are also supported.

- Location 3

  Table 1-5. Exchange Adapters on page 14

- Description 3

Package	Exchange Adapter
38MC	QB-38MC-EA-01T

- Location 4

  Table 1-7. YQ Connectors on page 14

- Description 4

Package	YQ Connector
38MC	QB-38MC-YQ-01T

- Location 5

  Table 1-8. Space Adapters on page 15

- Description 5

Package	Space Adapter
38MC	QB-38MC-YS-01T

- Location 6

  In **Table 1-9. Target Connectors** on page 15

- Description 6

Package	Target Connector
38MC	QB-38MC-NQ-01T

- Location 7

  In **Table 1-10. Mount Adapters** on page 16

- Description 7

Package	Mount Adapter
38MC	QB-38MC-HQ-01T

➢ Location 8

1.4 Package Contents on page 18

➢ Description 8

Products supplied with QB-78K0KX2-T38MC

1 to 8

9: Emulation probe QB-80-EP-01T

10: Exchange adapter QB-38MC-EA-01T

11: YQ connector QB-38MC-YQ-01T

12: Target connector QB-38MC-NQ-01T

4.2 Correction to supplied products

➢ Location

1.4 Package Contents on page 16.

➢ Description

[Before correction]

Products supplied with QB-78K0KX2-ZZZ

1: QB-78K0KX2

2: AC adapter

3: USB interface cable (2 meters)

4: User registration

5: Simplified flash programmer (PG-FPL3 or QB-MINI2)

6: ID78K0-QB Disk (CD-ROM)

7: Accessory Disk (CD-ROM)

8: IECUBE Setup Manual

[After correction]

Products supplied with QB-78K0KX2-ZZZ

1: QB-78K0KX2

2: AC adapter

3: USB interface cable (2 meters)

4: User registration

5: On-chip debug emulator with programming function (QB-MINI2)

6: ID78K0-QB Disk (CD-ROM)

7: Accessory Disk (CD-ROM)

8: IECUBE Setup Manual

4.3 Correction to 2.5 Mounting and Connecting Connectors

➢ Location

2.5.2 Mounting YQ on TC on page 26

➢ Description

[Before correction]

(1) After confirming that there are no broken or bent YQ contact pins, fit the YQ in the NQ and fasten the screw. If repeatedly inserting and removing, be sure to inspect the YQ pins before fitting. If pins are bent, correct them using something thin and flat such as the edge of a knife.

(2) Accessory holes are needed in prescribed positions in 4 places in the board for connecting the YQ. Fasten the YQ to the NQ on the user board using the supplied M2 × 10 mm screws. The thickness of a board corresponding to these screws is 1.0 to 2.0 mm. Fasten the screws equally in the four corners using a No. 1 or No. 0 precision (+) driver or torque driver. The tightening torque of the screws is 0.054 Nm (MAX.). Too great tightening causes bad connections.

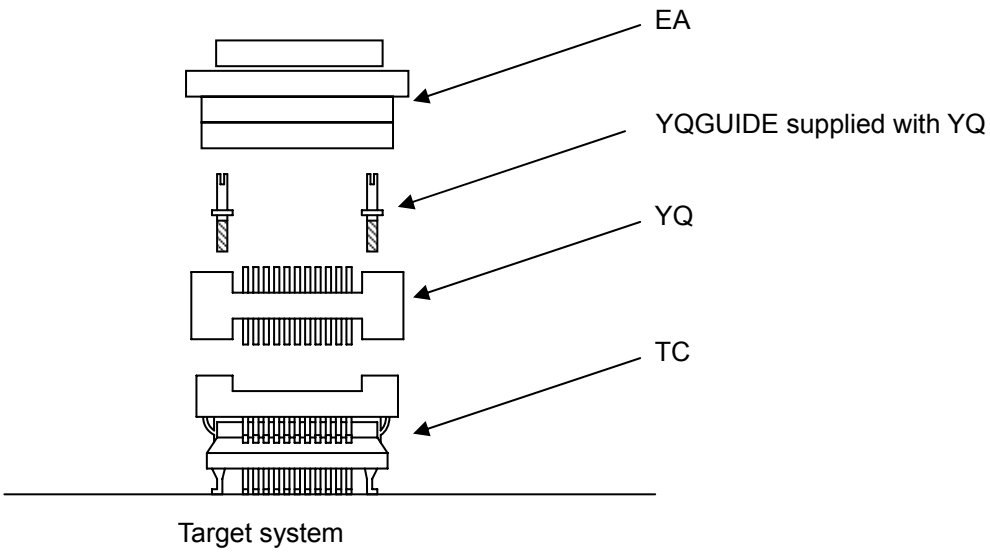
Screws for fitting to the NQ (M2 × 10 mm/4) are included with the YQ.

[After correction]

(1) After confirming that there are no broken or bent YQ contact pins, fit the YQ in the TC and fasten it using the supplied YQGUIDE (for the fastening method, see the next step, (2)). If repeatedly inserting and removing, be sure to inspect the YQ pins before fitting. If pins are bent, correct them using something thin and flat such as the edge of a knife.

(2) Fasten YQ to the TC on the target system using the supplied YQGUIDE. Fasten the screws equally in the four corners using the supplied flat-blade screwdriver or a torque driver. The tightening torque of YQGUIDE is 0.054 Nm (MAX.). Too great tightening causes bad connections.

Four screws for fitting to the MA (M2 × 10 mm / 4 units) are included with YQ.


EA
YQGUIDE supplied with YQ
YQ
TC
Target system

5. Cautions

General cautions on handling this product

a. Circumstances not covered by product guarantee

- If the product was disassembled, altered, or repaired by the customer
- If it was dropped, broken, or given another strong shock
- Use at overvoltage, use outside guaranteed temperature range, storing outside guaranteed temperature range
- If power was turned on while the AC adapter, interface cable, or target system connection was in an unsatisfactory state
- If the AC adapter cable, interface cable, emulation probe, or the like was bent or pulled excessively
- If an AC adapter other than the one supplied with the product is used
- If the product got wet
- If the product and target system were connected while a potential difference existed between the GND of the product and the GND of the target system
- If a connector or cable was removed while the power was being supplied to the product
- If an excessive load was placed on a connector or socket
- If the product is used or stored in an environment where an electrostatic or electrical noise is likely to occur

b. Safety precautions

- If used for a long time, the product may become hot (50°C to 60°C). Be careful of low temperature burns and other dangers due to the product becoming hot.
- Be careful of electrical shock. There is a danger of electrical shock if the product is used as described above in **a. Circumstances not covered by product guarantee**.
- The AC adapter supplied with the product is exclusively for this product, so do not use it with other products.

6. Revision History

Document Number	Issued on	Description
ZUD-CD-04-0127	October 19, 2004	Newly created.
ZUD-CD-05-0019	February 18, 2005	Addition of bug items (No. 1 to No. 3)
ZUD-CD-05-0067	May 25, 2005	Addition of bug item (No. 4)
ZUD-CD-05-0110	September 8, 2005	Addition of new specification and bug items (No. 5 to No. 7)
ZUD-CD-06-0110	June 27, 2006	Addition of bug item (No. 8)
ZUD-CD-07-0139	August 30, 2007	Addition of new specification and bug items (No. 9 to No. 11) Addition of **4. Changes in User's Manual**