# **Microcomputer Technical Information**

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		Document No.	ZBG	-CD-06-0053	1/2	
QB-78K0KX1H In-Circuit Emulator for 78K0/KB1, KC1, KD1, KE1, KF1, KB1+, KC1+, KD1+, KE1+, KF1+ Usage Restrictions		Date issued	July 24, 2006			
		Issued by	Development Tool Group Multipurpose Microcomputer Systems Div 4th Systems Operations Unit NEC Electronics Corporation			
Related	QB-78K0KX1H User's Manual:	Notification	$\checkmark$	Usage restriction		
documents	U17081EJ2V0UM00	classification	ion Upgrade			
				Document modification		
				Other notification		

# 1. Affected product

Product	Outline	Control Code <sup>Note</sup>
QB-78K0KX1H	In-circuit emulator for 78K0/KB1, KC1, KD1, KE1,	A, B, C, D, E, F
	KF1, KB1+, KC1+, KD1+, KE1+, KF1+	

# 2. New restriction

Bug No. 9 has been added. See the attachment for details.

3. Workaround

See the attachment for details.

#### 4. Modification schedule

Products in which No. 9 is modified are scheduled for release as follows.

Newly shipped products: From the shipment of early August, 2006 (control code: F) Upgrade for already shipped products: Available from July 28, 2006

\* Note that this schedule is subject to change without notice. For the detailed release schedule of modified products, contact an NEC Electronics sales representative.

#### 5. List of restrictions

See the attachment.

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 in the About dialog box in the ID78K0-QB.

"X" in version information "IECUBE \*\*\*\* X F/W: V\*.\*\*" is the control code.

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# 6. Document revision history

# QB-78K0KX1H In-Circuit Emulator for 78K0/KB1, KC1, KD1, KE1, KF1, KB1+, KC1+, KD1+, KE1+, KF1+

Document Number	Issued on	Description
ZBG-CD-04-0079	October 18, 2004	Newly created.
		Addition of new bug (No. 5)
		Modification of bug description (No. 3)
ZBG-CD-05-0031	April 25, 2005	Addition of new bugs (No. 6 to No. 8)
ZBG-CD-06-0053	July 24, 2006	Addition of new bug (No. 9)
		Modification of bug description (No. 9)

Usage Restrictions

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# Notes on Using QB-78K0KX1H

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 <sup>Note 1</sup>	Remark
А	_
В	Change of some parts <sup>Note 2</sup>
С	_
D	_
E	_
F	_

Notes 1. 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.

32	78K0 IECUBE Executer V1.08	2
	VOKU IECODE MONICOR VI.14	
	IECUBE 1000 F //W: V1.20	
	Control Board 0002 01.00 10.64	
	I/O Board 0100 01.01	
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2. Control codes A and B are functionally equivalent.

# 2. Product History

No.	Bugs and Changes/Additions to Specifications	Control Code				
		Α, Β	С	D	Е	F
1	Bug related to conflict between write to SFR in which a wait occurs and	×	$\checkmark$	$\checkmark$		
	interrupt					
2	Bug related to conflict between SFR access and interrupt	×	$\checkmark$		$\checkmark$	
3	Bug related to internal high-speed oscillator operation during HALT	×	×	$\checkmark$	$\checkmark$	
4	Illegal value is read from SFR in which a wait occurs	×	$\checkmark$		$\checkmark$	
5	External memory cannot be accessed via GUI operation	×	×		$\checkmark$	
6	Bug that occurs when a software break and an interrupt conflict	×	×	×	$\checkmark$	
7	A peripheral macro operates when an SFR that generates waits is	×	×	×	$\checkmark$	$\checkmark$
	accessed during a break.					
8	The program operation may be illegal when an instruction is re-executed	×	×	×	$\checkmark$	
	after a software break.					
9	Internal ROM area is overwritten during program execution	×	×	×	×	

 $\times$ : Applicable,  $\sqrt{}$ : Not applicable or already corrected

# 3. Details of Bugs and Added Specifications

No. 1 Bug related to conflict between write to SFR in which a wait occurs and interrupt [Description]

If a conflict occurs between writing to an SFR (TMC00, WDTM, ADM, ADS, PFM, or PFT) in which a wait occurs or writing to the buffer RAM and an interrupt, the interrupt vector may be illegal.

#### [Workaround]

There is no workaround. This bug has been corrected in control code C or later.

No. 2 Bug related to conflict between SFR access and interrupt

#### [Description]

If an interrupt occurs while accessing an SFR related to the functions shown below, the interrupt vector

may be illegal. However, this bug does not occur in operation at a frequency of 12 MHz or lower.

Ports (except for 4, 5, and 6), A/D converter, 16-bit timer 0, 8-bit timer, watchdog timer, low-voltage detector, UART0, UART6, CSI1, CSIA0, watch timer, key interrupt, and registers for multiplication/division

#### [Workaround]

There is no workaround. This bug has been corrected in control code C or later.

No. 3 Bug related to internal high-speed oscillator operation during HALT

#### [Description]

The watchdog timer operation does not stop even if mask option NONMSK (internal high-speed oscillator can be stopped by software) is set and the HALT instruction is executed, as long as the operation clock for the watchdog timer does not stop. As a result, a reset signal is generated.

#### [Workaround]

There is no workaround. This bug has been corrected in control code D or later.

No. 4 Illegal value is read from SFR in which a wait occurs

#### [Description]

When writing to an SFR (TMC00, WDTM, ADM, ADS, PFM, PFT) or the buffer RAM at an operating frequency of 15 to 16 MHz, a wait occurs. If an instruction that does not generate a wait is executed and the value written to the SFR is read during this wait period, an undefined value is read. The correct value can be read after the wait period has elapsed.

Example: MOV ADS,#7H MOVW MK0,#0FFFH MOV A,ADS ; Undefined value is read.

#### [Workaround]

Do not read the value written to the relevant register until the wait period ends.

This bug has been corrected in control code C or later.

No. 5 External memory cannot be accessed via GUI operation

# [Description]

When using the external memory ("Target" is selected in the Memory Mapping area in the Configuration dialog box), data in the external memory cannot be displayed nor can data be written to the external memory using the Memory window or the Memory command. (Accessing the external memory via the user program is performed normally.)

#### [Workaround]

There is no workaround. This bug has been corrected in control code D or later.

No. 6 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 illegal.

[Workaround]

Use a hardware break. This bug has been corrected in control code E or later.

No. 7 A peripheral macro operates when an SFR that generates waits is accessed during a break.

#### [Description]

When an SFR (special function register) that generates waits is accessed during a break while peripheral breaks have been enabled, a peripheral macro operates. Refer to the user's manual of the device for the wait clock count.

Example:

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

#### [Workaround]

There is no workaround. This bug has been corrected in control code E or later.

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No. 8 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 second byte of the instruction code is set to C0H, the values in the stack area become illegal 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. This bug has been corrected in control code E or later.

No. 9 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. This bug has been corrected in control code F or later.

#### 4. Cautions

#### 4.1 Caution on option byte function

When using a microcontroller with on-chip flash memory and the option byte function, the function to set the option byte to address 0080H cannot be emulated.

Set the mask option, instead of the option byte, in the Mask Option dialog box of the debugger; this enables emulation.

#### 4.2 Caution on target voltage during break

Do not decrease the target voltage during a break.

#### 4.3 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
- (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.