Microcontroller Technical Information

QB-78K0SKX1 In-Circuit Emulator for Low Pin Count Microcontrollers 78K0S/KA1+, 78K0S/KB1+, 78K0S/KU1+, 78K0S/KY1+ Usage Restrictions		Document No.	ZBG-CD-08-0030		1/2
		Date issued	July 23, 2008		
		Issued by	Development Tool Solution Group Multipurpose Microcomputer Systems Division Microcomputer Operations Unit NEC Electronics Corporation		
Related documents	QB-78K0SKX1 User's Manual: U18219EJ3V0UM00	Notification classification	√	Usage restriction	
				Upgrade	
				Document modification	
				Other notification	

1. Affected product

Product	Outline	Control Code[Note]
QB-78K0SKX1	In-circuit emulator for low pin count microcontrollers 78K0S/KA1+, 78K0S/KB1+, 78K0S/KU1+, 78K0S/KY1+	A, B, C

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 ID78K0S-QB.

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

2. New restriction

The following restriction has been added. See the attachment for details.

- No. 2 Restriction on A/D conversion

3. Workaround

See the attachment for details.

4. Modification schedule

Products in which No. 2 is corrected are scheduled for release as follows.

Shipment of products with control code C: From the orders received on July 28, 2008 or later

Upgrade for already shipped products: Available from August 1, 2008

* 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.

6. Document revision history

Document Number	Issued on	Description
ZBG-CD-07-0051	August 28, 2007	Newly created
ZBG-CD-08-0030	July 23, 2008	• Division of Product History into three sections: Restrictions, Additions and Changes to Specifications, and Cautions • Addition of restriction (No. 2)

Operating Precautions for QB-78K0SKX1

This document describes the following items. Refer to the user's manual for cautions on using an in-circuit emulator.

- Restrictions not applicable to the target device but applicable to an in-circuit emulator
- Restrictions applicable to both the target device and an in-circuit emulator but the correction is planned only for the in-circuit emulator

Also refer to the following documents for the restrictions in the target device.

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

1. Product Version

The product versions of NEC Electronics in-circuit emulators are indicated by a control code. 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 ID78K0S-QB is running. "X" in version information "IECUBE **** X F/W: V*.**" is the control code.

Figure 1. Checking Control Code (Label on QB-78K0SKX1)
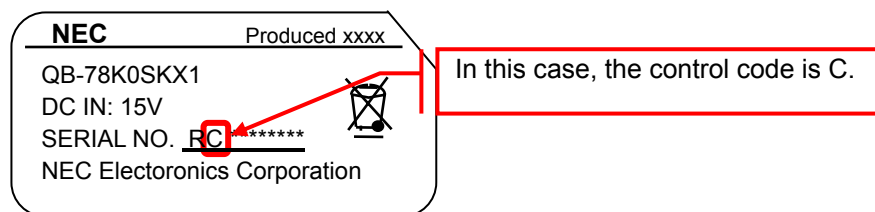
Figure 2. Checking Control Code (ID78K0S-QB)
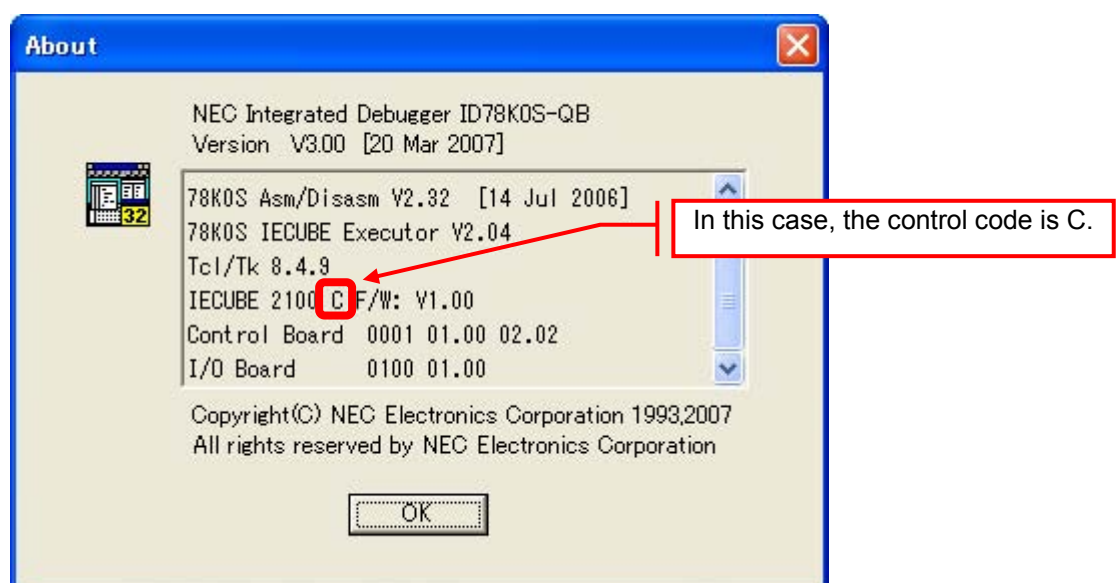
2. Restrictions

2.1 List of restrictions

No.	Restrictions	Control Code		
		A	B	C
1	A program does not stop at a software breakpoint	×	○	○
2	Restriction on A/D conversion	×	×	○

−: Not relevant, ×: Applicable, ○: Corrected

2.2 Details of restrictions

No. 1   A program does not stop at a software breakpoint

[Description]

 A program does not stop at a software breakpoint that is set to an instruction following the instruction whose instruction code is *0A0A*xx. Moreover, the instruction is not executed correctly.

 Example: Assemble window display

```
*     0180   0A0A0D   SET1 P13.0H
B     0183   0A5A04   SET1 P4.5H    ◄──
*     0186   0A3A0C   SET1 P12.3H
```

A program does not stop at this breakpoint because the instruction code immediately before this instruction is 0A0Axx. Moreover, this instruction is not executed correctly.

[Workaround]

 There is no workaround.

[Correction]

 This issue will be corrected in QB-78K0SKX1 with control code B and later.

No. 2   Restriction on A/D conversion

[Description]

 The result of the first A/D conversion may be invalid when either of the following conditions is satisfied.

   (1)   The setting of the analog input channel specification register (ADS) is changed during A/D conversion

   (2)   A/D conversion is stopped and then restarted

[Workaround]

 Ignore the first A/D conversion result.

[Correction]

 This issue will be corrected in QB-78K0SKX1 with control code C and later. In the case of (1), however, the first A/D conversion may take additional time (about 3 μs).

3. Additions and Changes to Specifications

3.1 List of additions and changes in specifications

No.	Additions and Changes to Specifications	Control Code		
		A	B	C
1	Addition of support for μPD78F9500, μPD78F9501 and μPD78F9502	×	○	○

−: Not relevant, ×: Change not implemented, ○: Change implemented

3.2 Details of additions and changes in specifications

No. 1   Addition of support for μPD78F9500, μPD78F9501 and μPD78F9502

[Description]

The μPD78F9500, μPD78F9501 and μPD78F9502 are supported in QB-78K0SKX1 with control code B and later.

[Caution]

When debugging the μPD78F9500, μPD78F9501 or μPD78F9502 as the target device by using QB-78K0SKX1 with control code B and later, use the device file included in the DF789234 (package version: V3.10 or later).

Control Code	Device File (DF789234) Package Version	Target Device	
B and later	V3.10 or later	78K0S/KU1+	μPD78F9200, μPD78F9201, μPD78F9202, μPD78F9500, μPD78F9501, μPD78F9502
		78K0S/KY1+	μPD78F9210, μPD78F9211, μPD78F9212, μPD78F9510, μPD78F9511, μPD78F9512
		78K0S/KA1+	μPD78F9221, μPD78F9222
		78K0S/KB1+	μPD78F9232, μPD78F9234
A	V3.00	78K0S/KU1+	μPD78F9200, μPD78F9201, μPD78F9202
		78K0S/KY1+	μPD78F9210, μPD78F9211, μPD78F9212, μPD78F9510, μPD78F9511, μPD78F9512
		78K0S/KA1+	μPD78F9221, μPD78F9222, μPD78F9521, μPD78F9522
		78K0S/KB1+	μPD78F9232, μPD78F9234, μPD78F9532, μPD78F9534

4. Cautions

No. 1   Supported debugger version

[Description]

Use ID78K0S-QB V3.00 or later and DF789234 V3.10 or later for the QB-78K0SKX1 with control code B and later.

5. Corrections to User's Manual

Corrections to the *QB-78K0SKX1 User's Manual* (document number: U18219EJ, 3rd edition) are described below.

Correction of restrictions

> Location
> *CHAPTER 4 RESTRICTIONS* on page 30

> Description

Before correction:

○ Clock oscillation or clock input via a resonator on the target system is not supported. The clock differs between the device and the tool (QB-78K0SKX1) according to the option byte (OSCSEL1, OSCSEL0) setting as follows.

When the target device is other than the μPD78F950x

Option Byte		Device	Tool
OSCSEL1	OSCSEL0		
0	0	Crystal/ceramic oscillation clock	System clock on QB-78K0SKX1
0	1	External clock input	System clock on QB-78K0SKX1
1	x	Internal high-speed oscillation clock	Internal high-speed oscillation clock of QB-78K0SKX1

When the target device is the μPD78F950x

Option Byte		Device	Tool
OSCSEL1	OSCSEL0		
0	0	Internal high-speed oscillation clock	System clock on QB-78K0SKX1[Note]
0	1	External clock input	System clock on QB-78K0SKX1
1	x	Internal high-speed oscillation clock	Internal high-speed oscillation clock of QB-78K0SKX1

Note   If OSCSEL1 and 0 are set to 0 and 0, set the setting in the Configuration dialog box of the debugger to "None" or "8 MHz".

After correction:

○ Clock oscillation or clock input via a resonator on the target system is not supported. The clock differs between the device and the tool (QB-78K0SKX1) according to the option byte (OSCSEL1, OSCSEL0) setting as follows.

When the target device is other than the μPD78F950x

Option Byte		Device	Tool
OSCSEL1	OSCSEL0		
0	0	Crystal/ceramic oscillation clock	System clock on QB-78K0SKX1
0	1	External clock input	System clock on QB-78K0SKX1
1	x	Internal high-speed oscillation clock	Internal high-speed oscillation clock of QB-78K0SKX1

When the target device is the μPD78F950x

Option Byte		Device	Tool
OSCSEL1	OSCSEL0		
0	0	Setting prohibited	Setting prohibited
0	1	External clock input	System clock on QB-78K0SKX1
1	x	Internal high-speed oscillation clock	Internal high-speed oscillation clock of QB-78K0SKX1