

# Microcomputer Technical Information

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IE-703089-MC-EM1 In-Circuit Emulator Option Board for V850/SC1, V850/SC2, V850/SC3  Usage Restrictions		Document No.	ZBG-BF-04-0009	1/2
		Date issued	November 18, 2004	
		Issued by	Car Audio Systems Development Group Automotive Systems Division 4th Systems Operations Unit NEC Electronics Corporation	
Related documents	IE-703089-MC-EM1 User's Manual: U15776EJ1V0	Notification classification	√	Usage restriction
				Upgrade
				Document modification
				Other notification

1. Affected product

IE-703089-MC-EM1

Control code<sup>Note</sup>: A, B, C, D, E, F, G, H, J, K, L

2. Details of restriction

Restriction No. 18 has been added. See the attachment for details.

3. Workaround

See the attachment for details.

4. Modification schedule

Products in which restriction No. 18 is modified are scheduled for release as follows.

Newly shipped products: From the shipment of January 2005 (control code: L)

Upgrade for already shipped products: Available from late December 2004

\* Note that this schedule is subject to change without notice. For the detailed release schedule of the 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 in the warranty supplied with the product you purchased (if it has not been upgraded). If the product has been upgraded, the version can be checked by the label attached to the product.

6. Revision history

IE-703089-MC-EM1 In-Circuit Emulator Option Board for V850/SC1, V850/SC2, V850/SC3  
Usage Restrictions

Document Number	Date Issued	Description
SBG-TT-0117-E	May 31, 2002	Newly created.
SBG-TT-0156-E	July 19, 2002	Addition of new bug (No. 13)
SBG-DT-04-0290-E	November 12, 2003	Addition of new bugs (No. 14 and No. 15)
SBG-DT-04-0130	April 19, 2004	Addition of new bug (No. 16)
ZBG-BF-04-0002	July 30, 2004	Addition of new bug (No. 17)
ZBG-BF-04-0009	November 18, 2004	Addition of new bug (No. 18)

## Notes on Using IE-703089-MC-EM1

### 1. Product Version

Control Code	Board Version	Peripheral Chip	Remark
A	1.00	$\mu$ PD70F3089 (DS1.1)	
B	1.10	$\mu$ PD70F3089 (DS1.1)	
C	1.11	$\mu$ PD70F3089 (DS1.2)	
D	1.22	$\mu$ PD70F3089 (DS2.0 or later)	
E	1.23	$\mu$ PD70F3089 (DS2.0 or later)	
F	1.33	$\mu$ PD70F3089 (DS2.0 or later)	
G	1.34	$\mu$ PD70F3089 (DS2.0 or later)	
H	1.44	$\mu$ PD70F3089 (DS2.0 or later)	
J	1.45	$\mu$ PD70F3089 (DS2.0 or later)	
K	1.55	$\mu$ PD70F3089 (DS2.0 or later)	
L	1.66	$\mu$ PD70F3089 (DS2.0 or later)	

**Employ an IE-703002-MC with a control code of H or later when using this option board.**

## 2. Product History

No.	Bugs and Changes/Additions to Specifications	Control Code										
		A	B	C	D	E	F	G	H	J	K	L
1	Emulation impossible with target supply voltage below 4.2 V	x	√	√	√	√	√	√	√	√	√	√
2	Connection with socket using “YQ-Guide” or with “SWEX-144SD” impossible <sup>Note</sup>	x	√	√	√	√	√	√	√	√	√	√
3	Register values related to 3-wire serial I/O channels 5 & 6 cannot be read correctly	x	x	√	√	√	√	√	√	√	√	√
4	Bug in timer clock selection of timer 6	x	x	√	√	√	√	√	√	√	√	√
5	Bug in I/O of port 00	x	x	x	√	√	√	√	√	√	√	√
6	Bug in accessing the external expansion area	x	x	x	√	√	√	√	√	√	√	√
7	Bug when two FCAN channels are used simultaneously and support for specification change	x	x	x	√	√	√	√	√	√	√	√
8	Addition of device functions (1) IIC bus function (2) Watch timer function	x	x	x	√	√	√	√	√	√	√	√
9	ROM correction function cannot be emulated	Permanent restriction										
10	Emulation during oscillation stabilization time after RESET release cannot be performed	Permanent restriction										
11	Restriction on interrupts in STOP/IDLE mode	x	x	x	x	√	√	√	√	√	√	√
12	Hi-Z output from the CLKOUT pin cannot be emulated	Permanent restriction										
13	Bug in external bus interface (1)	x	x	x	x	x	√	√	√	√	√	√
14	Bug in accessing FCAN area	√	√	√	√	√	x	√	√	√	√	√
15	Bug in external bus pin	x	x	x	x	x	x	x	√	√	√	√
16	Bug in external bus interface (2)	√	√	√	√	√	√	x	x	√	√	√
17	Bug in FCAN-related interrupt when P130/P131/P132 is in output mode	x	x	x	x	x	x	x	x	x	√	√
18	Bug in STOP/IDLE mode release timing	x	x	x	x	x	x	x	x	x	x	√

x: Applicable, √: Not applicable or already corrected

**Note** “YQ-Guide” and “SWEX-144SD” are products of Tokyo Eletech Corporation.

The “control code” is the second digit from the left in the 10-digit serial number in the warranty supplied with the product you purchased (if it has not been upgraded). If the product has been upgraded, the version can be checked by the label attached to the product.

### 3. Details of Bugs and Added Specifications

No. 1 Emulation impossible with target supply voltage below 4.2 V

[Description]

Emulation cannot be performed if the target power supply voltage (Vdd0, Vdd1) is below 4.2 V.

[Workaround]

When the target board is connected, use a power supply voltage (Vdd0, Vdd1) of at least 4.2 V.

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

No. 2 Connection with socket using "YQ-Guide" or with "SWEX-144SD" impossible

[Description]

A connection cannot be made with a socket using the "YQ-Guide" or with the "SWEX-144SD".

[Workaround]

When using a socket that uses the "YQ-Guide", remove the "YQ-Guide" before use.

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

No. 3 Register values related to 3-wire serial I/O channels 5 & 6 cannot be read correctly

[Description]

I/O register values related to 3-wire serial I/O channels 5 and 6 cannot be read when the CPU clock (f<sub>CPU</sub>) is greater than 10 MHz.

**\* This bug only applies to the emulator; it does not occur in the actual CPU.**

[Workaround]

When reading the I/O register values related to 3-wire serial I/O channels 5 and 6 with f<sub>CPU</sub> operating at more than 10 MHz, set f<sub>CPU</sub> to 10 MHz or less.

Note that I/O registers can be written as usual when f<sub>CPU</sub> is operating at more than 10 MHz.

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

No. 4 Bug in timer clock selection of timer 6

[Description]

If the timer clock selection of timer 6 is set to "TM0 overflow signal" (TCL60 = 07h, TCL61 = 01h), the timer clock will be set to f<sub>xx</sub>/256, and the TM0 overflow signal will not be able to be selected. (Reading/writing TCL60 = 07h, TCL61 = 01h is possible.)

[Workaround]

There is no workaround.

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

## No. 5 Bug in I/O of port 00

## [Description]

Port 00 cannot perform output operations even if set as an output port.

Moreover, port 00 cannot read the correct input value even if set as an input port while the NMI pin function is masked in the debugger. (The operation is performed correctly if port 00 is set as an input port and the NMI pin function is not masked in the debugger.)

## [Workaround]

There is no workaround.

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

## No. 6 Bug in accessing the external expansion area

## [Description]

The external expansion area (including the FCAN memory area) cannot be read/written.

## [Workaround]

There is no workaround.

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

## No. 7 Correction of bug when two FCAN channels are used simultaneously and support for specification change

## [Description]

- (1) When two FCAN channels are used simultaneously, the received data may be stored in an incorrect message buffer (the last message buffer) or may be discarded.
- (2) When two FCAN channels are used simultaneously, incorrect data (the last message buffer) may be transmitted.
- (3) The TMR bit of the CANn control register (CnCTRL) was changed.

TMR	Control Bit for Reception Time Stamp
0	The value in the time stamp counter is not captured.
1	The value in the time stamp counter is counted when an EOF is detected on the CAN bus (judged as a valid message).

\* The value in the time stamp counter is not counted even when an SOF is detected on the CAN bus.

## [Workaround]

There is no workaround.

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

## No. 8 Addition of device functions

## [Description]

- (1) IIC bus function

The IICF0 (FFFFF368H) and IICF1 (FFFFF36AH) registers have been added.

- (2) Watch timer function

The WTNHC (FFFFF366H) register has been added.

## [Workaround]

There is no workaround.

This item has been implemented in control code D or later.

## No. 9 ROM correction function cannot be emulated

## [Description]

The ROM correction function cannot be emulated.

## [Workaround]

There is no workaround.

Regard this item as a permanent restriction.

## No. 10 Emulation during oscillation stabilization time after RESET release cannot be performed

## [Description]

Emulation during the oscillation stabilization time after RESET release cannot be performed.

Emulation during the oscillation stabilization time after STOP mode release is possible.

## [Workaround]

There is no workaround.



Regard this item as a permanent restriction.

## No. 11 Restriction on interrupts in STOP/IDLE mode

## [Description]

The emulator deadlocks if the device is shifted to the STOP/IDLE mode while the interrupt request flag for an interrupt that is not masked is set.

## [Workaround 1]

Be sure to clear the non-masked interrupt request flag before shifting to the STOP/IDLE mode. If the device is inadvertently shifted before clearing the flag, execute "Run" → "Stop" or click the  button in the debugger. The program is forcibly terminated. Then, execute "Run" → "CPU Reset" or click the  button.

## [Workaround 2]

Do not allow the device to shift to the STOP/IDLE mode while the interrupt request flag for an interrupt that is not masked is set.

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

## No. 12 Hi-Z output from the CLKOUT pin cannot be emulated

## [Description]

The Hi-Z output from the CLKOUT pin cannot be emulated. Even if the power save control register (PSC) is set to "Hi-Z output (DCLK1 = 0, DCLK0 = 1)" in the emulator, the same operation as "output enable (DCLK1 = 0, DCLK0 = 0)" is performed.

## [Workaround]

There is no workaround.

Regard this item as a permanent restriction.

## No. 13 Bug in external bus interface (1)

## [Description]

When using the external bus interface, the values of read data D0 to D15 may not be read correctly.

## [Workaround]

There is no workaround.

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

## No. 14 Bug in accessing FCAN area

## [Description]

When an instruction to access the FCAN address area (xxnFF800H to xxnFFFFFFH (n = 3, 7, or B)) is allocated to the emulation memory or target memory mapped to the external area and the instruction is executed, the FCAN register may not be able to be read (but it can be written).

## [Workaround]

Allocate the instructions to access the FCAN address area to the internal ROM area.

This bug only applies to control code F products.

## No. 15 Bug in external bus pin

## [Description]

The address pins (A[21:16]) do not become Hi-Z in STOP, IDLE, and bus-hold modes.

## [Workaround]

There is no workaround.

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

## No. 16 Bug in external bus interface (2)

## [Description]

When an address between xxnf0000 and xxnff7ff (n = 3, 7, or B) in the external memory or emulation memory is read and the data is a value between f800H and ffffH, the value may not be read correctly.

## [Workaround]

Do not use addresses from xxnf0000 to xxnff7ff (n = 3, 7, or B) as external memory or emulation memory.

This bug applies to control codes G and H.

This bug has been corrected in control code J.

## No. 17 Bug in FCAN-related interrupt when P130/P131/P132 is in output mode

## [Description]

An FCAN-related interrupt may not be generated when P130/P131/P132 is in output mode.

The conditions under which this bug occurs and their descriptions are shown below.

Conditions	Descriptions
P130 is in output mode	FCAN1 serial error interrupt (INTCE1) does not occur.
P131 is in output mode	FCAN2 serial error interrupt (INTCE2) does not occur.
P132 is in output mode	FCAN memory access serial error interrupt (INTCME) does not occur.



[Workaround]

Use P130/P131/P132 in input mode.



This bug has been corrected in control code K.

No. 18 Bug in STOP/IDLE mode release timing

[Description]

Standby mode cannot be released if the device is shifted to the standby state (STOP/IDLE mode) when an interrupt request for an interrupt that is not masked is generated (within 4 CPU operating clocks immediately before shifting to the standby state).

[Workaround]

Execute "Run" → "Stop" or click the  button in the debugger. The program is forcibly terminated. Then, execute "Run" → "CPU Reset" or click the  button.

This bug has been corrected in control code L.

## 4. Restrictions

### 4.1 Restriction on power

The IE-703089-MC-EM1 has the following restriction.

No.	Restriction
1	Satisfy the following conditions with other than $V_{DD0} = V_{DD1} = ADCV_{DD} = PORTV_{DD0} = PORTV_{DD1} = PORTV_{DD2}$ . (1) $PORTV_{DD1} \leq PORTV_{DD2}$ when using the FCAN controller (restriction of the emulator) (2) $V_{DD0} = ADCV_{DD} = 4.5$ to $5.5$ V when using the A/D converter

### 4.2 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 ( $50^{\circ}\text{C}$  to  $60^{\circ}\text{C}$ ). 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**.