RTA-FoUSB-MON

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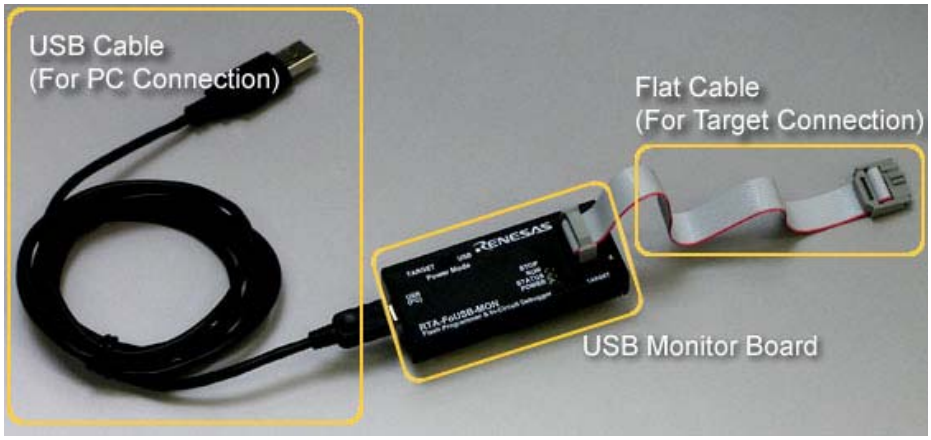


USB Flash Writer for M16C Family

Compact Flash Memory Programmer - USB Ver. 1.1 Compliant
Enables high-speed data programming and erasing from a PC via USB communications with use of Renesas's Standard Boot Program

Features

- High-speed programming using USB input/output
  256KB write time: approx. 25 seconds
  256KB erase time: approx. 1 second
- 5V can be supplied through USB cable
- Compact size, easy to carry
- Functions as an on-chip debugger that can be controlled by the KD30 or KD3083 debugger

Applicable MCUs

M16C Family

R8C/10
- R5F21102FP
- R5F21103FP
- R5F21104FP

R8C/11
- R5F21112FP
- R5F21113FP
- R5F21114FP

R8C/12
- R5F21122FP
- R5F21123FP
- R5F21124FP

R8C/13
- R5F21132FP
- R5F21133FP
- R5F21134FP

M32C/83
- M30833FJFP/GP
- M30835FJGP

M32C/84
- M30843FJFP/GP
- M30845FJGP

M32C/85
- M30850FJFP/GP
- M30852FJGP
- M30853FHFP/GP
- M30853FWFP/GP
- M30855FHGP
- M30855FWGP

M32C/86
- M30865FJGP

M32C/87
- M30879FLFP/GP
- M3087BFLGP

M16C/80
- M30800FCFP/GP
- M30802FCGP
- M30803FGFP/GP
- M30805FGGP

M16C/62A
- M30620FCAFP/GP
- M30621FCAGP
- M30624FGAFP/GP
- M30625FGAGP

M16C/62M
- M30620FCMFP/GP
- M30621FCMGP
- M30624FGMFP/GP
- M30625FGMGP

M16C/62N
- M3062GF8NFP/GP

M16C/62P
- M30620FCPFP/GP
- M30621FCPGP
- M30622F8PFP/GP
- M30623F8PGP
- M30624FGPFP/GP
- M30625FGPGP
- M30626FHPFP/GP
- M30626FJPFP/GP
- M30627FHPGP
- M30627FJPGP

M16C/6N
- M306N4FCTFP
- M306N4FGTFP
- M306N5FCTFP
- M306NAFGTFP
- M306NBFCTFP

M16C/24
- M30245FCGP

M16C/26
- M30262F3GP
- M30262F4GP
- M30262F6GP
- M30262F8GP

M16C/26A
- M30260F3AGP
- M30260F4AGP
- M30260F6AGP
- M30260F8AGP
- M30263F3AFP
- M30263F4AFP
- M30263F6AFP
- M30263F8AFP

M16C/28
- M30280F6HP
- M30280F8HP
- M30280FAHP
- M30281F6HP
- M30281F8HP
- M30281FAHP

M16C/29
- M30290F8HP
- M30290FAHP
- M30290FCHP
- M30291F8HP
- M30291FAHP
- M30291FCHP

M16C/10
- M30100F3FP
- M30102F3FP

M16C/1N
- M301N2F8TFP

740 Family

7542
- M37542F8SP/FP/GP

38C2
- M38C29FFAFP/HP

*On-going support for more MCU products with GUI upgrades

PC System Requirements

- IBM PC/AT or compatible PC (USB interface necessary.)
- Recommended for use with Intel Pentium II 233MHz (or higher)
- 128MB memory (or higher) recommended
- Microsoft Windows 98SE / Windows ME / Windows 2000 / Windows XP

USB Flash Writer Includes

Hardware

- Main Unit	USB Monitor Board
- Cable	USB Cable (for PC connection), Flat Cable (for target connection)
- Connector	10-pin Connector (HIF3BA-10D-2.54)

Software (CD-ROM)

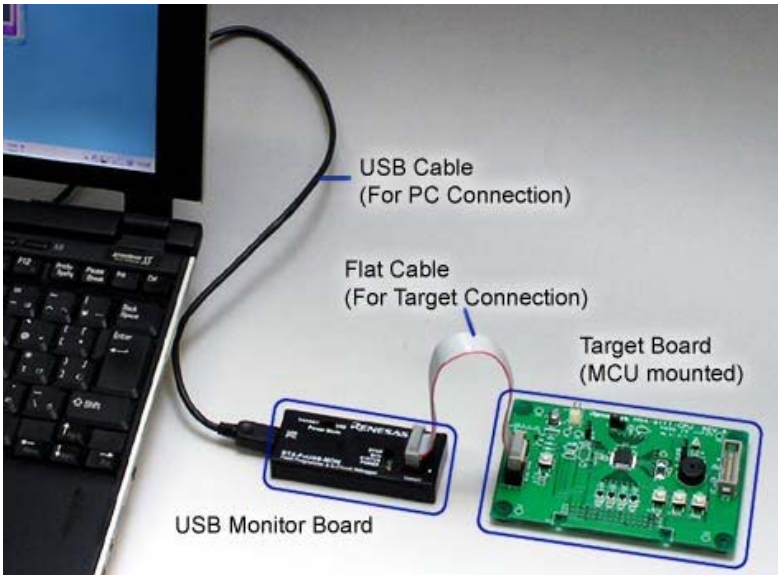
- GUI	Flash-Over-USB*1
- Debugger*2	KD30 (only for M16C/10, M16C/1N, M16C/24, M16C/26, M16C/26A, M16C/28, M16C/29, M16C/62A, M16C/62M, M16C/62P, M16C/62N, M16C/6N, R8C/10, R8C/11, R8C/12, R8C/13) KD3083 (only for M16C/80, M32C/83, M32C/84, M32C/85, M32C/86, M32C/87)
- C Compiler*3	M3T-NC30WA (Entry Version) This entry version is a cross tool that includes a C compiler, assembler, and linker. The entry version has some functional restrictions compared to the M3T-NC30WA Professional Version. In addition, the entry version does not come with guarantees or technical support services. Features: Offers same functions as M3T-NC30WA (TM integrated environment included), with the following restrictions: ● Some of the optimization and debug options are not available. ● The tool to analyze the inspector, or variable, is not available. ● Some tool functions, such as the map viewer, are not available. M3T-NC308WA (Entry version) This entry version is a cross tool that includes a C compiler, assembler, and linker. The entry version has some functional restrictions compared to the M3T-NC308WA Professional Version. In addition, the entry version does not come with guarantees or technical support services. Features: Offers same functions as M3T-NC308WA (TM integrated environment included), with the following restrictions: ● Some of the optimization and debug options are not available. ● The tool to analyze the inspector, or variable, is not available. ● Some tool functions, such as the map viewer, are not available.

Documentation

- USB Flash Writer User's Manual Rev.4.01 (PDF: 1.96MB)

*1: The USB driver is generated in the GUI install destination folder.
*2: bundled with M3A-0665
*3: bundled with CD-ROM Rev.2.10 or later.

Connecting USB Flash Writer

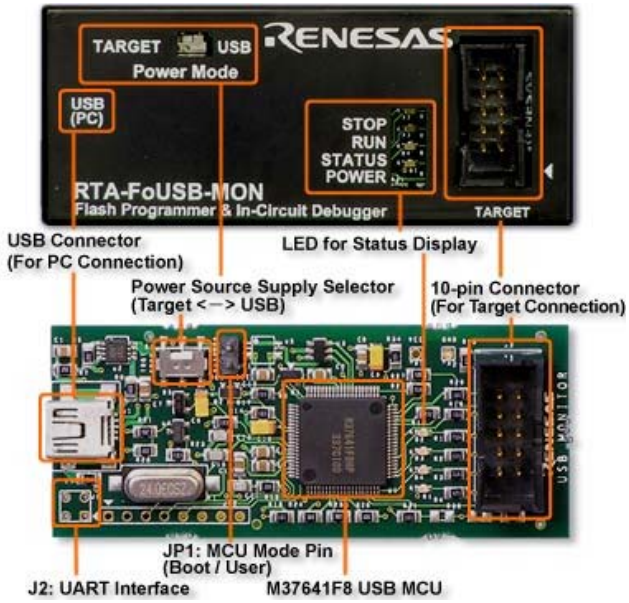


Hardware

USB Monitor Board

Item	Description
USB MCU	M37641F8HP(8-bit USB Flash MCU)
USB Interface (Primary connection to debug PC)	Full speed USB connection and USB 2.0 compliant
UART interface	4-pin header for RS-232C PC connection (TTL Level - RS-232C tranceiver / circuit is mounted externally.)
Target Interface	10-pin connection with starter- kit or target board. Please read 'Target Board Connectivity' on how to design the target hardware to connect the USB Monitor Board.
Power Configuration (Note)	The USB Monitor will operate either at 5 V or 3.3 V and may be bus powered from USB at 5 V or target powered at 3.3 V.
Current Requirements	The maximum current drawn by the USB Monitor is 50mA.
Board Size	2.75" x 1.15" (70 mm x 29 mm)

Note: When providing 3.3 V power on the board, the firmware cannot be rewritten (downloaded). The USB bus powered supply (5 V) should be used to rewrite the firmware before providing power.



Unit Dimensions

Height: approx. 1.3cm
Length: approx. 3.2cm
Width: approx. 7.6cm

USB Cable: approx. 100cm
Flat Cable: approx. 20cm

Notes

Note 1

When the PC and USB Monitor Board are connected and only the Power Indicator LED lights up (see figure below), this indicates that the firmware was not successfully downloaded to the USB MCU (the USB MCU firmware has either been erased or damaged). In this case, the Flash-over-USB (FoUSB) GUI and debugger (KD30, KD3083) cannot be used.

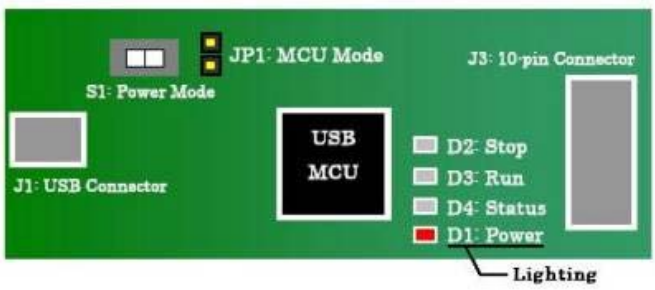
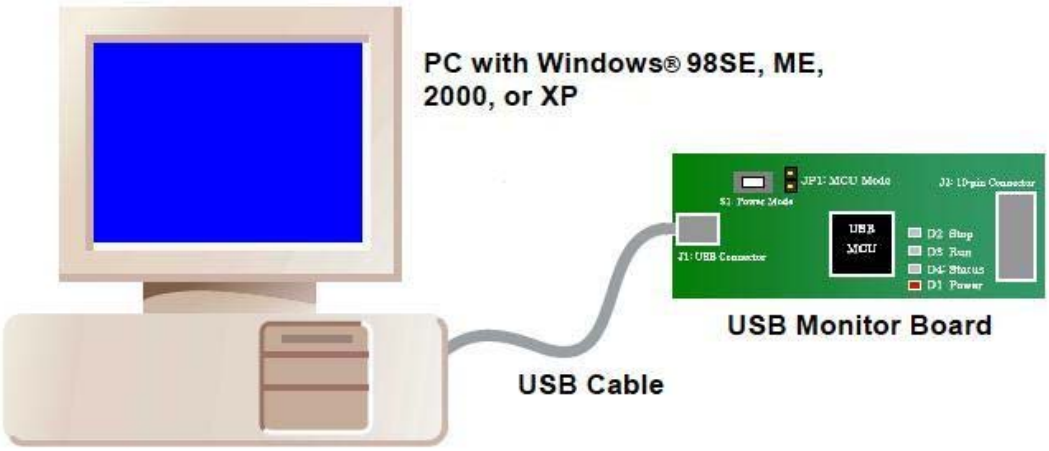


Fig: Operation LEDs when USB MCU firmware has been erased or damaged.

When this happens, please follow the instructions below and download the firmware to the USB MCU. Note that the FoUSB driver must already be installed. Please confirm these details on this web site (**Installation of FoUSB Driver**).

- Remove the USB Monitor Board cover and take out the board.
- Short-circuit the MCU Mode Pin (JP1: MCU Mode).
- Connect the board to your PC.



- Start up the Flash-over-USB (FoUSB) GUI and click on "Load MMI" in the GUI screen.
- The Chip Selection Screen will then be displayed. Select the MCU you are using and download the firmware to the USB MCU.
- After the download is completed, the 'download completed' screen will be displayed. Click "OK."
- Turn off the Flash-over-USB (FoUSB) GUI, and disconnect the board and your PC.
- Reset the MCU Mode Pin (JP1: MCU Mode) on the board to "open."
- Connect board to your PC.
- If the Power Indicator is lit up and the Status Indicator is blinking, as shown in the figure below, the firmware was successfully downloaded. The Flash-over-USB (FoUSB) GUI and debugger (KD30, KD3038) are now ready for use.

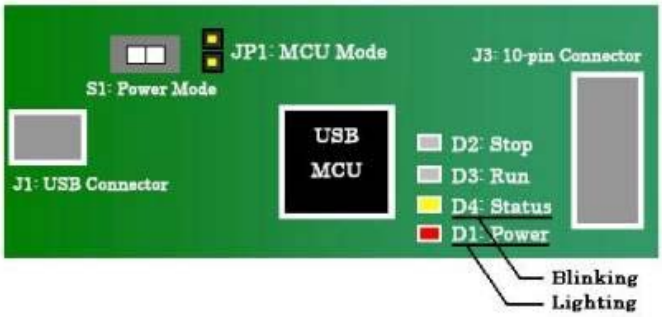


Fig: When firmware was successfully downloaded to USB MCU.

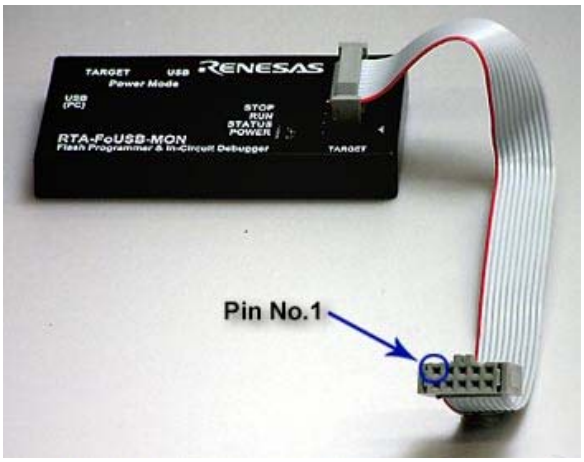
- Disconnect your PC and the board and reattach the cover to the board.
- This completes the forced firmware download.

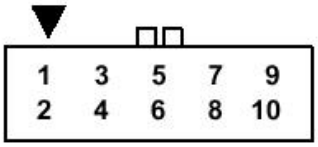
Note 2
If you encounter problems concerning the bundled debugger (KD30, KD3083), please contact csc@renesas.com . Responses will be made as promptly as possible; length of response period depends on complexity of inquiry.

When contacting us, please have the following information ready:
your name, company name, department name, fax number, MCU part number (ex. M30624FGAFP), tool part number, version of debugger, and a brief description of the problem.

Pin Assignments

USB Flash Writer pin assignment and signal name
Example) M16C/62A





10-pin connector

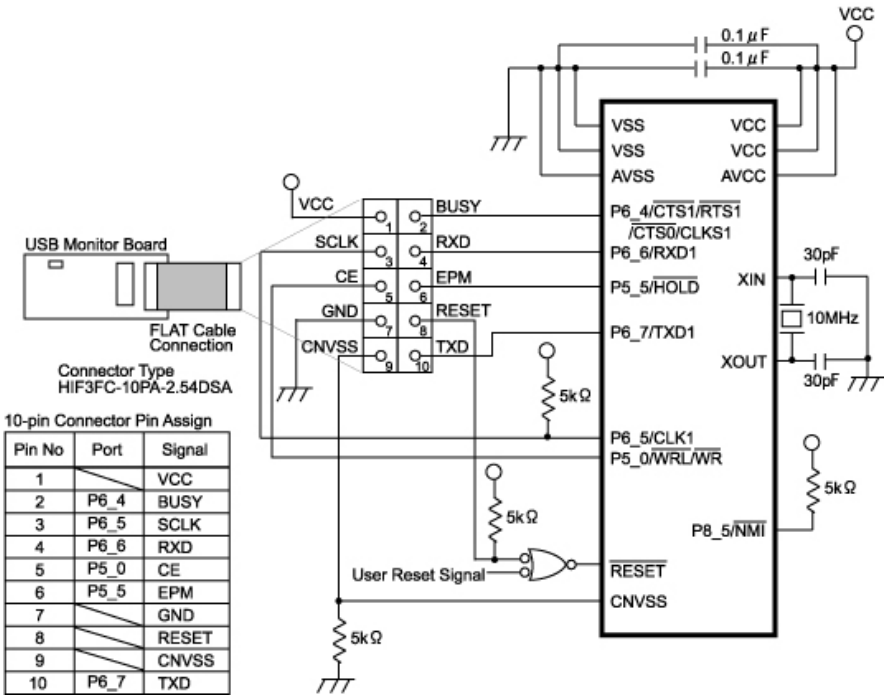
Pin No.	Port	Signal
1		Vcc
2	P6_4	BUSY
3	P6_5	SCLK
4	P6_6	RxD
5	P5_0	CE
6	P5_5	EPM
7		GND
8		RESET
9		CNVss
10	P6_7	TxD

Software Update

- USB Flash Writer GUI: Flash-over-USB Ver.2.10 (Compressed: 1.86MB)
  [Jan. 19, 2005]
- ReadMe*

* **Please read before updating your software.**

Target Board Circuit Example

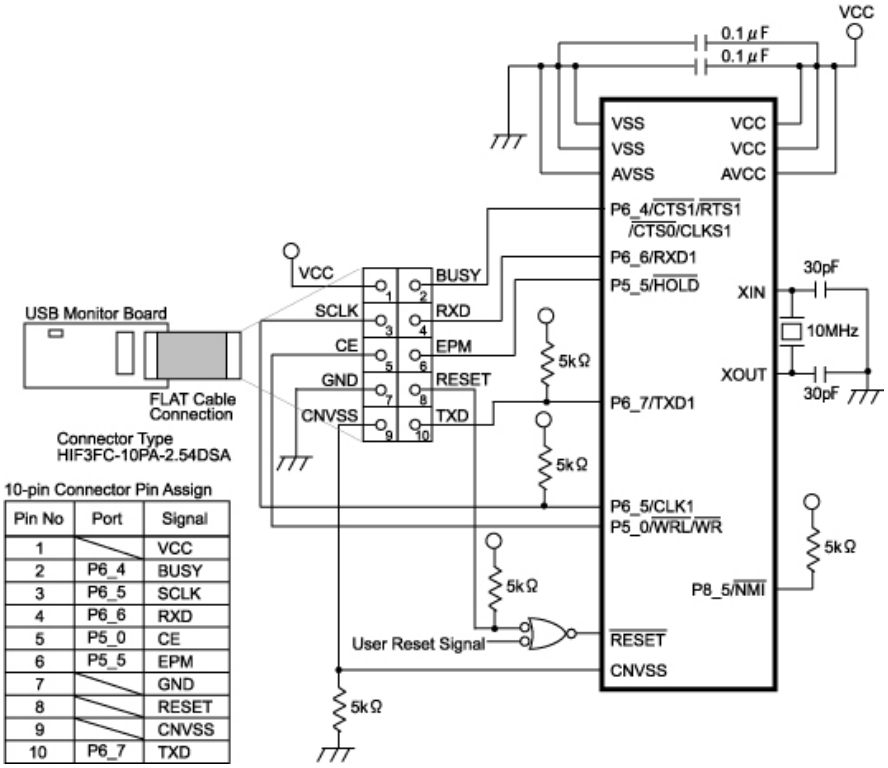


10-pin Connector Pin Assign

Pin No	Port	Signal
1		VCC
2	P6_4	BUSY
3	P6_5	SCLK
4	P6_6	RXD
5	P5_0	CE
6	P5_5	EPM
7		GND
8		RESET
9		CNVSS
10	P6_7	TXD

Example 1: Applicable MCUs

M16C/62A, M16C/62M, M16C/6N(M306NAFG, M306NBFC), M16C/62N(M3062GF8N), M16C/80, M16C/24

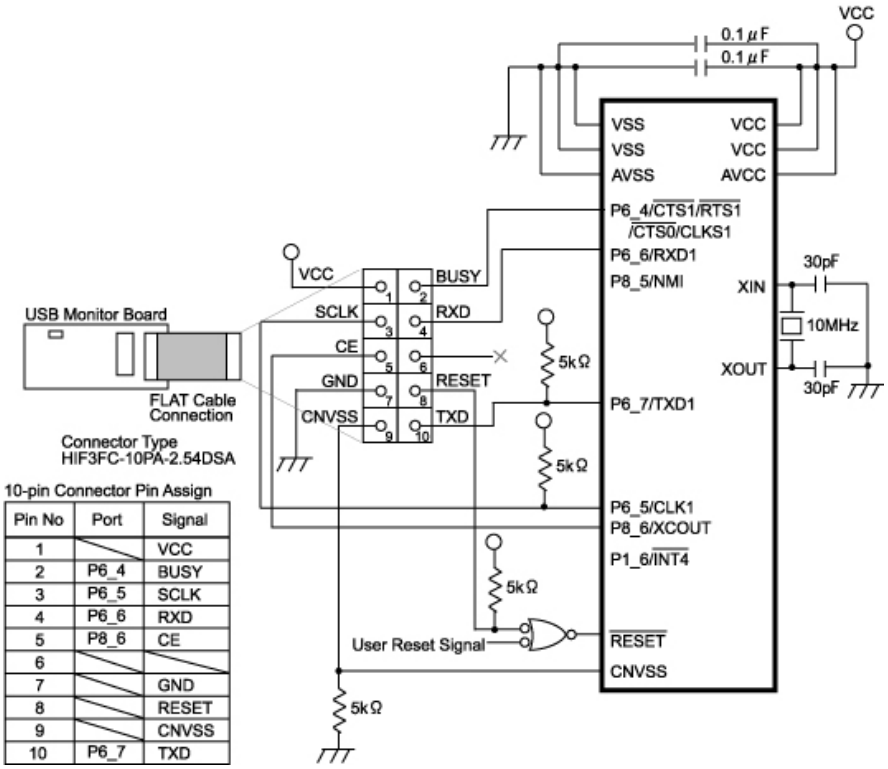


10-pin Connector Pin Assign

Pin No	Port	Signal
1		VCC
2	P6_4	BUSY
3	P6_5	SCLK
4	P6_6	RXD
5	P5_0	CE
6	P5_5	EPM
7		GND
8		RESET
9		CNVSS
10	P6_7	TXD

Example 2: Applicable MCUs

M16C/62P, M16C/6N(M306N4FC, M306N5FC, M306N4FG)



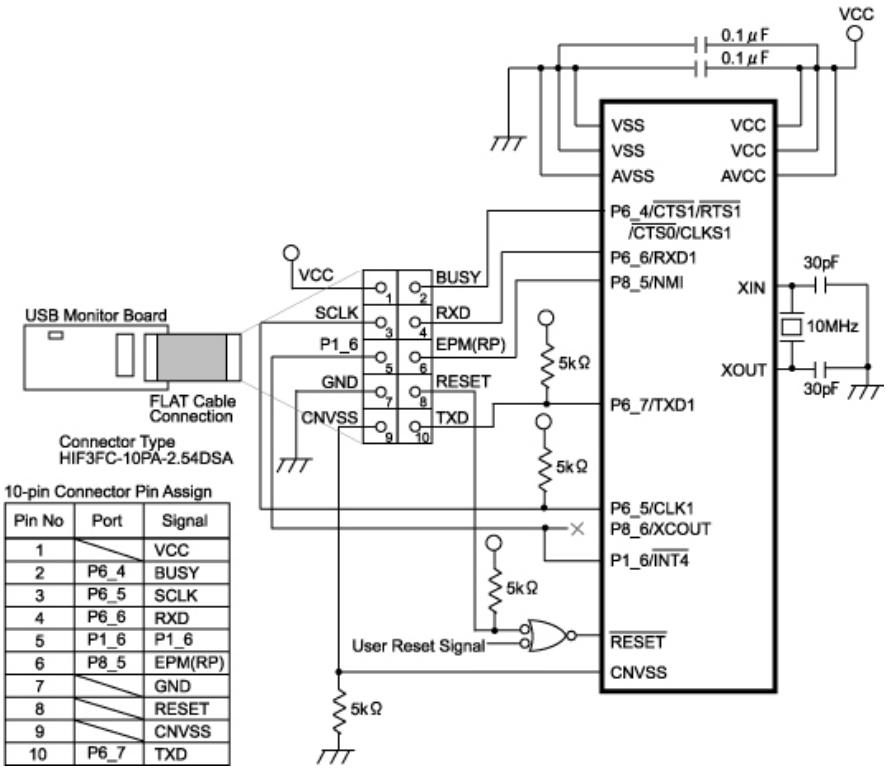
10-pin Connector Pin Assign

Pin No	Port	Signal
1		VCC
2	P6_4	BUSY
3	P6_5	SCLK
4	P6_6	RXD
5	P8_6	CE
6		
7		GND
8		RESET
9		CNVSS
10	P6_7	TXD

Example 3-(1): Applicable MCUs

M16C/26, M16C/26A, M16C/28, M16C/29

Note: It is necessary to connect the CE pin or the EPM(RP) pin and the P1_6 pin. The CE pin is connected in this Target Board Circuit Example.



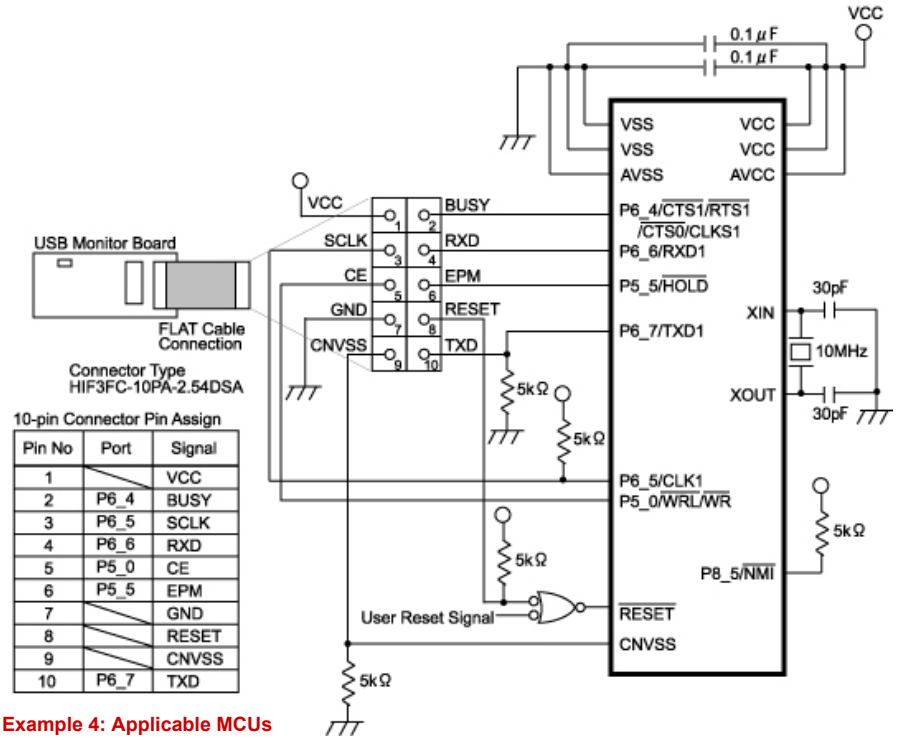
10-pin Connector Pin Assign

Pin No	Port	Signal
1		VCC
2	P6_4	BUSY
3	P6_5	SCLK
4	P6_6	RXD
5	P1_6	P1_6
6	P8_5	EPM(RP)
7		GND
8		RESET
9		CNVSS
10	P6_7	TXD

Example 3-(2): Applicable MCUs

M16C/26, M16C/26A, M16C/28, M16C/29

Note: It is necessary to connect the CE pin or the EPM(RP) pin and the P1_6 pin. The EPM(RP) pin and the P1_6 pin are connected in this Target Board Circuit Example.

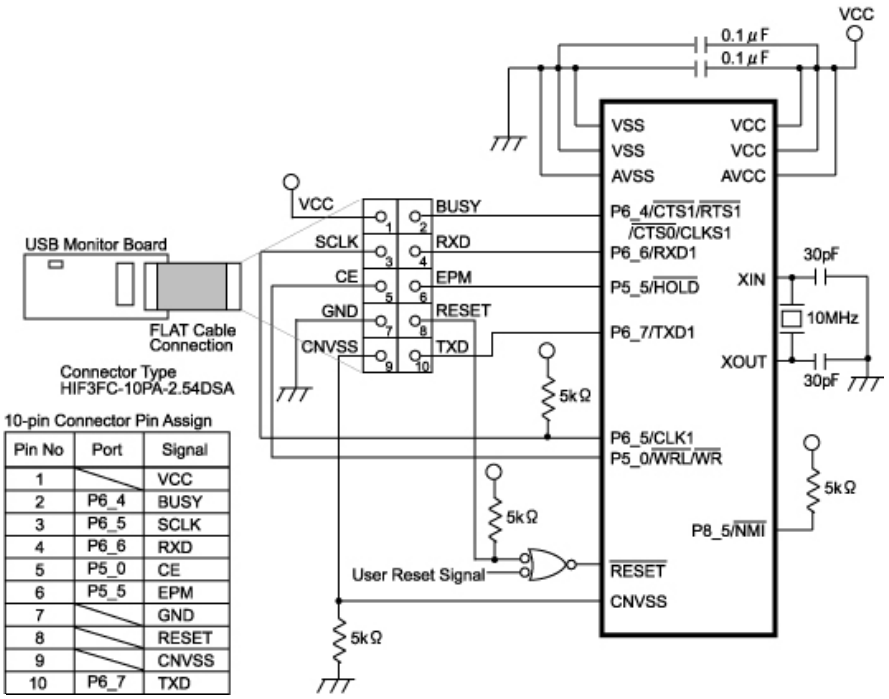


10-pin Connector Pin Assign

Pin No	Port	Signal
1		VCC
2	P6_4	BUSY
3	P6_5	SCLK
4	P6_6	RXD
5	P5_0	CE
6	P5_5	EPM
7		GND
8		RESET
9		CNVSS
10	P6_7	TXD

Example 4: Applicable MCUs

M32C/83

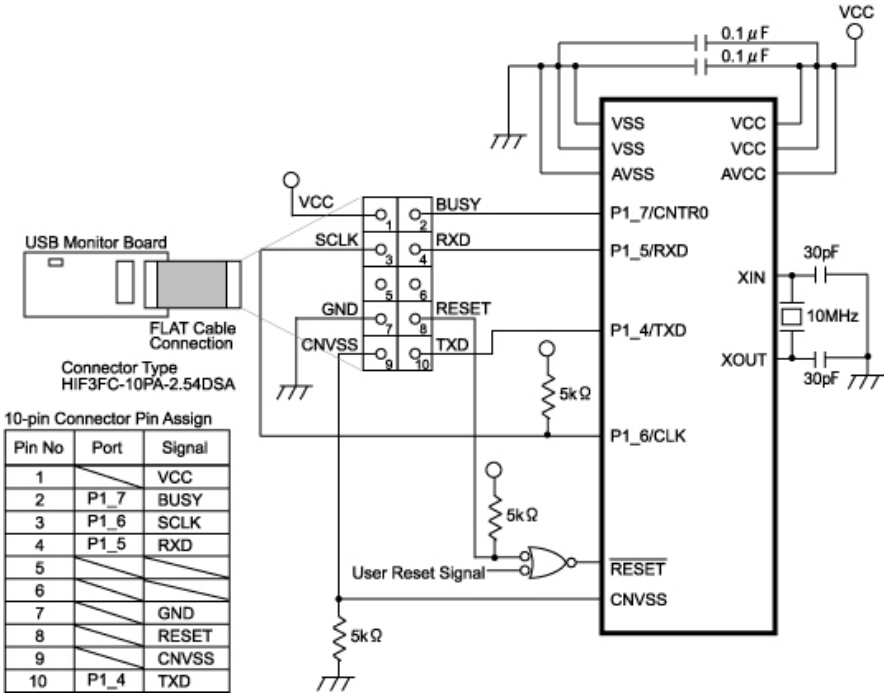


10-pin Connector Pin Assign

Pin No	Port	Signal
1		VCC
2	P6_4	BUSY
3	P6_5	SCLK
4	P6_6	RXD
5	P5_0	CE
6	P5_5	EPM
7		GND
8		RESET
9		CNVSS
10	P6_7	TXD

Example 5: Applicable MCUs

M32C/84, M32C/85, M32C/86, M32C/87

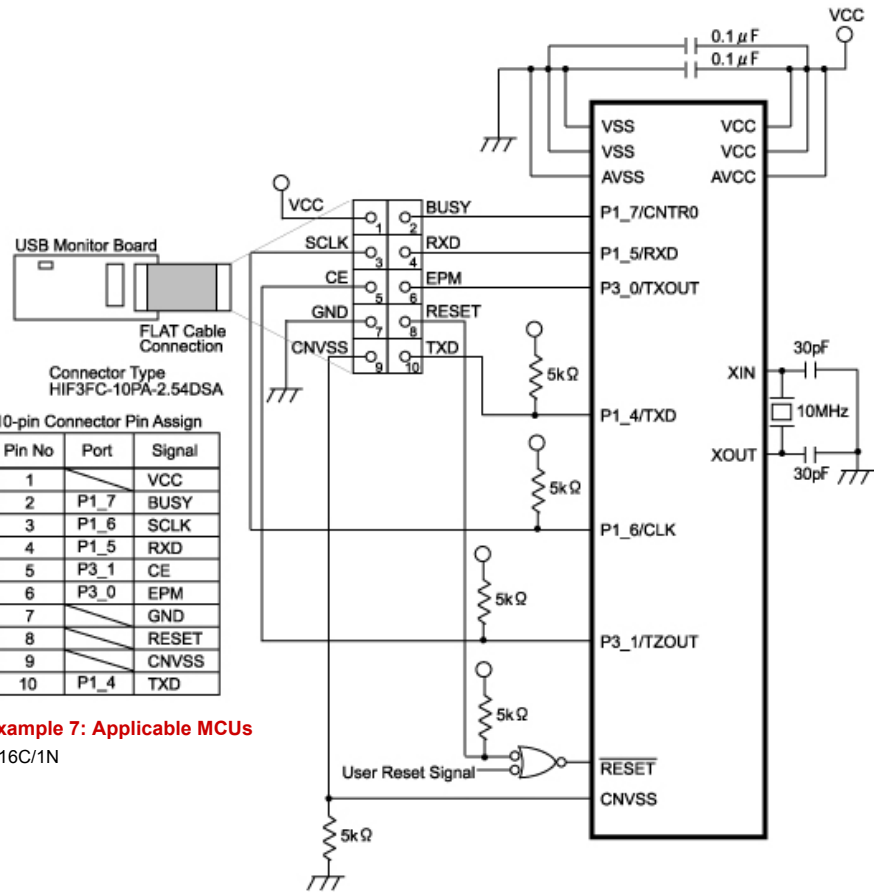


10-pin Connector Pin Assign

Pin No	Port	Signal
1		VCC
2	P1_7	BUSY
3	P1_6	SCLK
4	P1_5	RXD
5		
6		
7		GND
8		RESET
9		CNVSS
10	P1_4	TXD

Example 6: Applicable MCUs

M16C/10

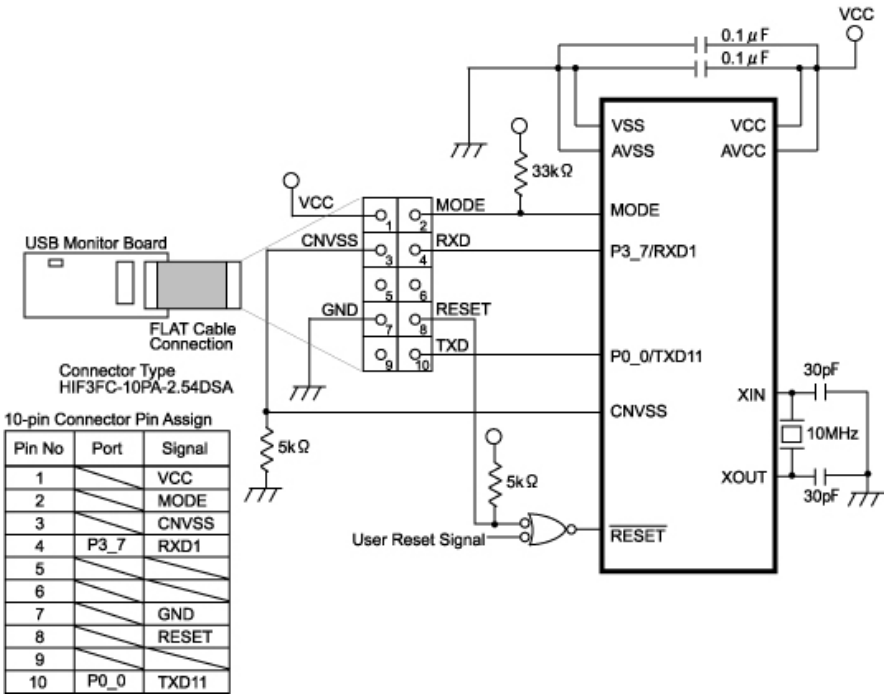


10-pin Connector Pin Assign

Pin No	Port	Signal
1		VCC
2	P1_7	BUSY
3	P1_6	SCLK
4	P1_5	RXD
5	P3_1	CE
6	P3_0	EPM
7		GND
8		RESET
9		CNVSS
10	P1_4	TXD

Example 7: Applicable MCUs

M16C/1N

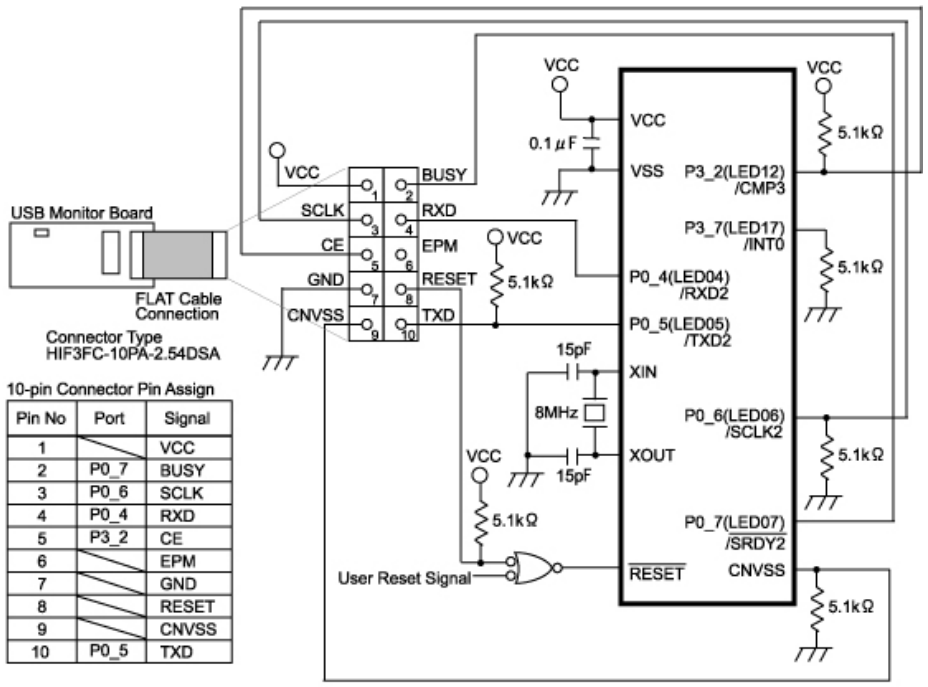


10-pin Connector Pin Assign

Pin No	Port	Signal
1		VCC
2		MODE
3		CNVSS
4	P3_7	RXD1
5		
6		
7		GND
8		RESET
9		
10	P0_0	TXD11

Example 8: Applicable MCUs

R8C/10, R8C/11, R8C/12, R8C/13



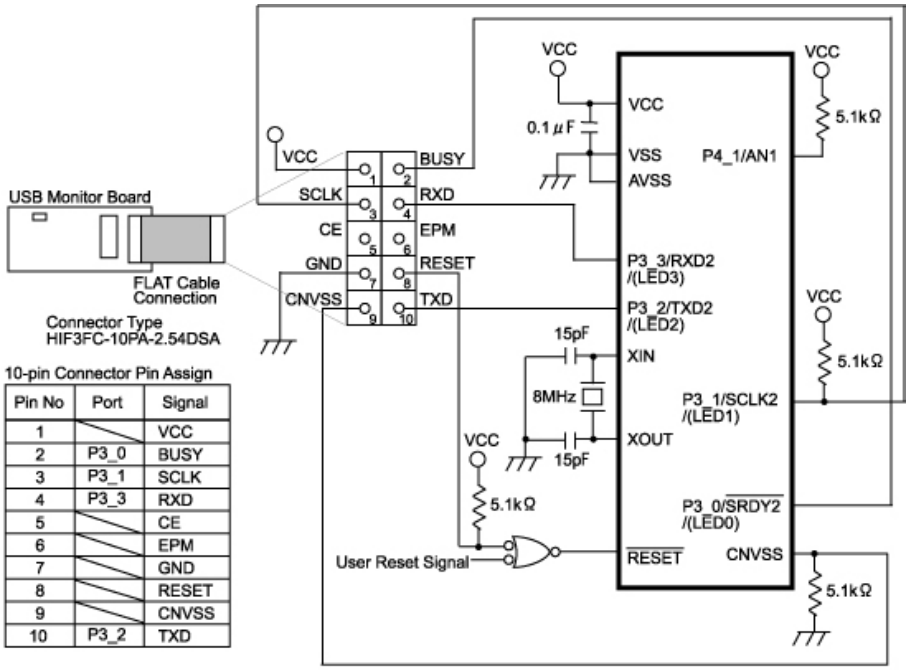
10-pin Connector Pin Assign

Pin No	Port	Signal
1		VCC
2	P0_7	BUSY
3	P0_6	SCLK
4	P0_4	RXD
5	P3_2	CE
6		EPM
7		GND
8		RESET
9		CNVSS
10	P0_5	TXD

Note: For the pin handling when the Flash mode control pins are used for the user application circuit, please refer to 7542 Group Datasheet.

Example 9: Applicable MCUs

7542



10-pin Connector Pin Assign

Pin No	Port	Signal
1		VCC
2	P3_0	BUSY
3	P3_1	SCLK
4	P3_3	RXD
5		CE
6		EPM
7		GND
8		RESET
9		CNVSS
10	P3_2	TXD

Note: For the pin handling when the Flash mode control pins are used for the user application circuit, please refer to 38C2 Group (A version) Datasheet.

Example 10: Applicable MCUs

38C2

USB Driver Installation

Important!!
Please read the following before installing the USB Driver.

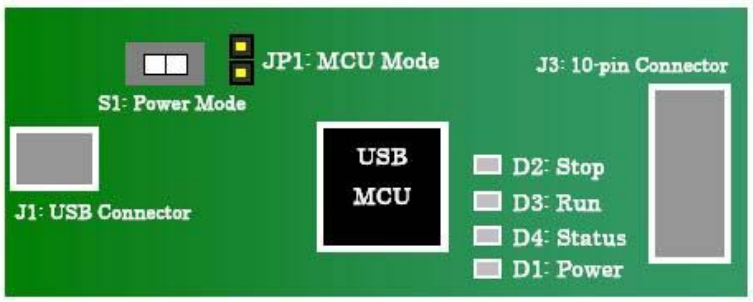
(1) Copy the Flash-over-USB (FoUSB) GUI installer to an arbitrary folder and execute the installation using the installer copied to that folder.

(2) If you are using Windows 2000/XP, the GUI and driver installation must be executed by the administrator. After installation, both the Power User (standard user) and the User (restricted user) can implement GUI.

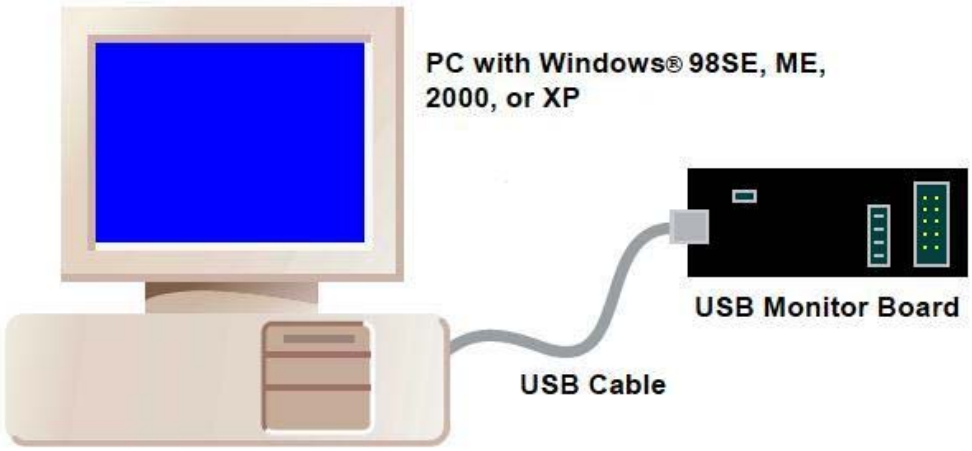
Installation of USBMON Driver

(1) Before installing the USBMON driver, remove the USB Monitor Board cover and set as indicated below. Make sure the cover is reattached after all settings are completed.

Settings)
Power supply switch (S1: Power Mode): USB side
MCU Mode Pin (JP1: MCU Mode): open



(2) Connect the PC and USB Monitor Board.



(3) The PC will recognize the new hardware. Install the USBMON driver according to the Install Wizard instructions. You will need to specify the retrieval location of the USBMON driver at this time. An example of a retrieval location specification is shown below.

Example)
When FoUSB GUI installation destination is C:\MTOOL\FOUSB,
the retrieval location will be C:\MTOOL\FOUSB\USB Drivers.

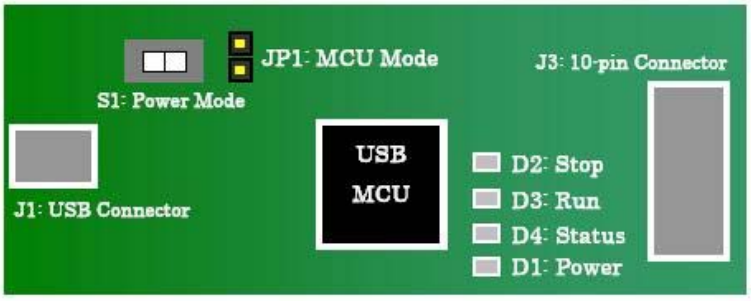
(4) After following the Installation Wizard instructions and the USBMON driver installation is completed, disconnect the PC and USB Monitor Board.

(5) Installation is now complete.

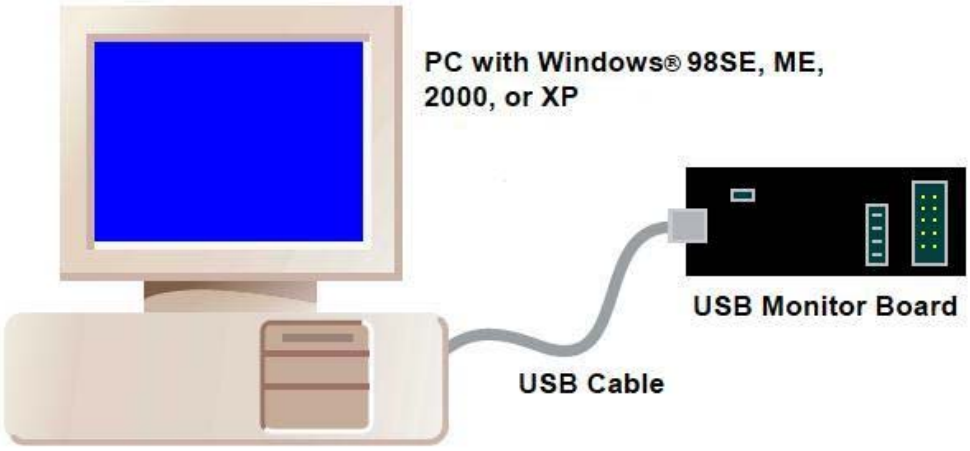
Installation of FoUSB Driver

(1) Before installing the USBMON driver, remove the USB Monitor Board cover and set as indicated below. Make sure the cover is reattached after all settings are completed.

Settings)
Power supply switch (S1: Power Mode): USB side
MCU Mode Pin (JP1: MCU Mode): short



(2) Connect the PC and USB Monitor Board.

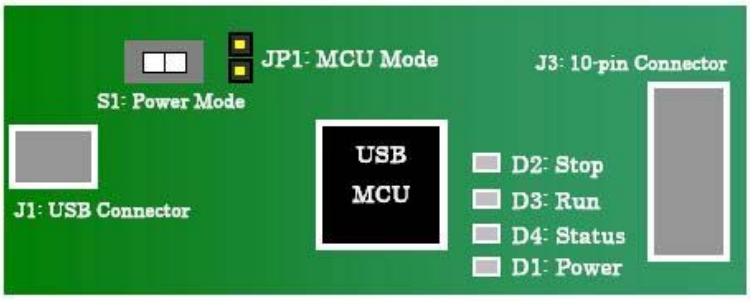


(3) The PC will recognize the new hardware. Install the FoUSB driver according to the Install Wizard instructions. You will need to specify the retrieval location of the FoUSB driver at this time. Specify the same the folder that stores the USBMON driver ("USB Drivers" folder).

(4) After following the Installation Wizards instructions and the FoUSB driver installation is completed, disconnect the PC and USB Monitor Board.

(5) Remove the cover of the USB Monitor Board again, and reset as indicated below. Make sure you reattach the cover after the setting is completed.

Setting)
MCU Mode Pin (JP1: MCU Mode): open



(6) Installation is now complete.

Version Update Information

USB Flash Writer (M3A-0665) User's Manual Rev.4.00 → Rev.4.01 (Jan. 19, 2005)

(1) Precautions on KD3083 Emulation Memory is added.
→ Please refer to User's Manual (Rev.4.01) [5.1.2 Starting the KD].

(2) User reset signal is added to Example connection of target board.

(3) Example connection of target board (M16C/26, 26A, 28, 29) is changed.

(4) Example connection of target board (38C2) is added.
→ Please refer to User's Manual (Rev.4.01) [7.1.3 Example Connection]

Flash-over-USB (FoUSB) GUI Ver.2.04→ Ver.2.10 (Jan. 19, 2005)

(1) Addition of supported MCUs
→ M16C/62P(M30626FJP, M30627FJP), M32C/85(M30855FW), M32C/87, 38C2

*__Please refer to ReadMe file for version history__