Renesas Flash Programmer
Sample Circuit for Programming by Using a PC’s Serial Port

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2012/10/24      Rev. 3.00

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Sample Type A Circuit

This document describes sample circuits for programming the flash memory of a microcontroller by using Renesas Flash Programmer connected to a PC serial port. A sample circuit for each type is shown below. A list of the microcontroller models and types that can be used with Renesas Flash Programmer is available from "Renesas Flash Programmer target devices list" on the following website: http://www.renesas.com/rfp

Note: An operation check has been conducted for the sample circuit. However, there might be timing differences due to the characteristics of the target system and PC. The user is responsible for evaluating the circuit and determining whether the circuit can be applied to the user system. Renesas is not responsible concerning the applicability of the circuit.

Sample Type A Circuit (2-wire UART)

<table>
<thead>
<tr>
<th>9-pin D-SUB connector (female)</th>
<th>COM signal conversion IC</th>
<th>Inverter</th>
<th>Microcontroller</th>
<th>FLMD0</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. RxD</td>
<td></td>
<td></td>
<td>TxD</td>
<td></td>
</tr>
<tr>
<td>3. TxD</td>
<td></td>
<td></td>
<td>RxD</td>
<td></td>
</tr>
<tr>
<td>7. RTS</td>
<td></td>
<td></td>
<td>_RESET</td>
<td></td>
</tr>
</tbody>
</table>

Target system

- Leave unused pins open.
- Short these pins before power up
- Assumed to be MAX232A or MAX3232
- Specify the same operating voltage as the microcontroller pins TxD, RxD and _RESET
- See the data sheet from the IC manufacturer for the way of setting

Note: Resistance is assumed to 4.7kΩ. About Pull-up and pull-down resistor values, please check the electrical characteristics of each microcontroller, and use the appropriate resistor values.

RS-232C cable (straight type)
PC with serial ports
Sample Type B Circuit

This document describes sample circuits for programming the flash memory of a microcontroller by using Renesas Flash Programmer connected to a PC serial port. A sample circuit for each type is shown below. A list of the microcontroller models and types that can be used with Renesas Flash Programmer is available from "Renesas Flash Programmer target devices list" on the following website: http://www.renesas.com/rfp

Note: An operation check has been conducted for the sample circuit. However, there might be timing differences due to the characteristics of the target system and PC. The user is responsible for evaluating the circuit and determining whether the circuit can be applied to the user system. Renesas is not responsible concerning the applicability of the circuit.

Sample Type B Circuit (1-wire UART)

Note: Resistance is assumed to 4.7kΩ. About Pull-up and pull-down resistor values, please check the electrical characteristics of each microcontroller, and use the appropriate resistor values.

Target system

Assumed to be MAX232A or MAX3232
Specify the same operating voltage as the microcontroller pins TxD, RxD and _RESET
See the data sheet from the IC manufacturer for the way of setting

Short these pins before power up

See the microcontroller's manual for the names of the pins used for programming and how to handle them

RL78 do not have FLMD0.

Actual pins

Leave unused pins open.

2. RxD
3. TxD
7. RTS

Three state buffer

Inverter

Microcontroller

Reset circuit

Note

PC with serial ports
RS-232C cable (straight type)
Sample Type C Circuit

This document describes sample circuits for programming the flash memory of a microcontroller by using Renesas Flash Programmer connected to a PC serial port. A sample circuit for each type is shown below. A list of the microcontroller models and types that can be used with Renesas Flash Programmer is available from "Renesas Flash Programmer target devices list" on the following website: http://www.renesas.com/rfp

Note: An operation check has been conducted for the sample circuit. However, there might be timing differences due to the characteristics of the target system and PC. The user is responsible for evaluating the circuit and determining whether the circuit can be applied to the user system. Renesas is not responsible concerning the applicability of the circuit.

Sample Type C Circuit (2-wire UART)

Note1 Resistance is assumed to 4.7kΩ. About Pull-up and pull-down resistor values, please check the electrical characteristics of each microcontroller, and use the appropriate resistor values.

Note2 Please set each microcontroller will be entry to the boot mode before power up the target system.

*This circuit example, assume RX62T Group