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78K0R/Kx3 Microcontroller Sample Program Operation Manual (UART Reception (Serial Array Unit), C Source)

This software is for reference only and NEC Electronics does not guarantee its operation.

Thoroughly evaluate this software on your set prior to use.

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1st Product Solution Group, Multipurpose Microcomputer Systems Division, Microcomputer Operations Unit NEC Electronics Corporation

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1. OVERVIEW

This manual explains the sample program functions of UART (reception mode) for the 78K0R/Kx3.

In this sample program, UART (reception mode) operation is performed.

The communication conditions are as follows.

- fclk = 20 MHz
- UART0 (unit 0, channel 1) is used.
- 9,600 bps, 8-bit data, stop bit: 1, no parity
- LSB first
- Number of receive data: 10 bytes
- Receive data: (any)
- INTSR0 reception end interrupt servicing is used.

2. RESOURCES USED

Resource	Description	Remark
Main clock specification	Internal high-speed oscillator used (8 MHz (TYP.))	Always oscillated
	High-speed system clock used (20 MHz)	Oscillated by initial processing.
		Supplied to CPU and peripheral hardware
Subclock	XT1 (32.768 kHz)	Oscillated by initial processing
Related hardware	Peripheral enable register 0 (PER0)	
	Serial clock select register 0 (SPS0)	Clock used: CK00 (1/2 ⁴ of main clock), 1.25
		MHz (0.8 μs)
	Serial mode register 00 (SMR00)	
	Serial mode register 01 (SMR01)	
	Serial communication operation setting register 00	Reception only, data length: 8 bits
	(SCR00)	
	Serial data register 00 (SDR00)	Transfer rate: 9,600 bps
	Serial data register 00 (SDR01)	Transfer rate: 9,600 bps
	Serial output level register 0 (SOL0)	Sets output data level.
	Serial channel start register 0 (SS0)	
	Serial channel stop register 0 (ST0)	
	Serial output register 0 (SO0)	
	Serial output enable register 0 (SOE0)	
	Port mode register 1 (PM1)	
	Port register 1 (P1)	
I/O	Data input: RxD0 (P11)	
Interrupt	Reception end interrupt (INTSR0) of UART0	
Others	Not used	

3. SOFTWARE CONFIGURATION

Files

File Name	Processing Outline	Remark
K0R_def.h ^{Note}	Definition file	
K0R_init.c ^{Note}	Initialization processing	
K0R_ext.h	External declaration	
K0R_main.c	Main processing	
K0R_sfr_set.c	UART processing (reception mode)	

Note These files are commonly used by the sample programs.

4. FUNCTION EXPLANATIONS

[File name]

K0R_main.c

Function

Function Name	Processing Outline	Argument	Return Value
main	Main routine	None	None

Function explanations

Function name	main
Processing	Main routine
Argument	_
Return value	-
Description	Executes initialization processing and then waits for receive data.
	Once reception has been completed, the operation is aborted and resumed after a specific time.
Remark	_

[File name]

K0R_sfr_set.c

Functions

Function Name	Processing Outline	Argument	Return Value
UAR_RVIN	Initializes UART.	None	None
UAR_RVBK	Aborts UART operation.	None	None
UAR_RVRE	Resumes UART operation.	None	None
UAR_RVSP	Stops UART operation.	None	None
UAR_RVIT	UART reception interrupt servicing	None	None

Function explanations

Function name	UAR_RVIN
Processing	Initializes UART.
Argument	_
Return value	_
Description	Executes initialization.
Remark	-

Function name	UAR_RVBK
Processing	Aborts UART operation.
Argument	_
Return value	-
Description	Transits to a communication operation stop state.
Remark	-

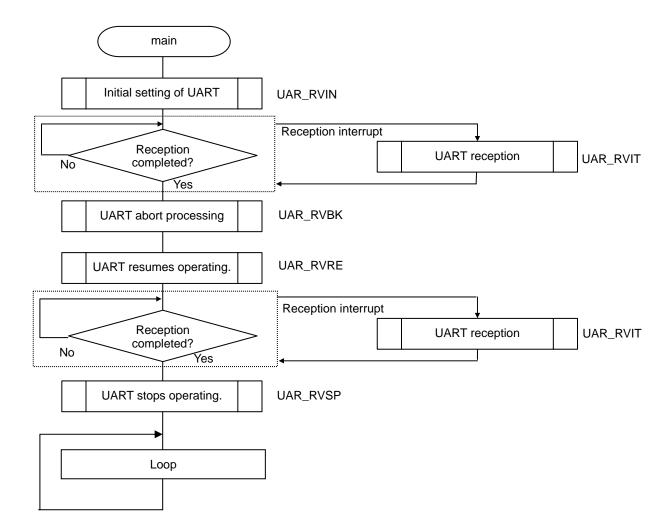
Function name	UAR_RVRE
Processing	Resumes UART operation.
Argument	-
Return value	-
Description	Resumes reception operation.
Remark	-

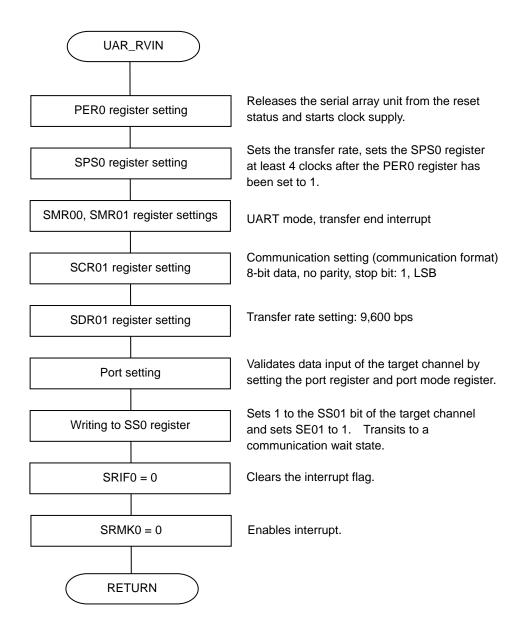
Function name	UAR_RVSP
Processing	Stops UART operation.
Argument	_
Return value	-
Description	Stops clock supply.
Remark	_

Function name	UAR_RVIT	
Processing	UART reception interrupt servicing	
Argument	_	
Return value	_	
Description	The start condition is a transfer end interrupt.	
	An interrupt is generated when 1-byte data has been received.	
	When 10 bytes of data have been received, a reception completion flag is set.	
Remark	_	

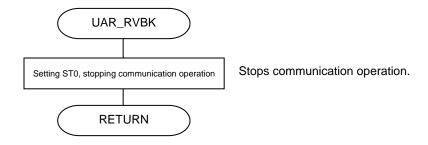
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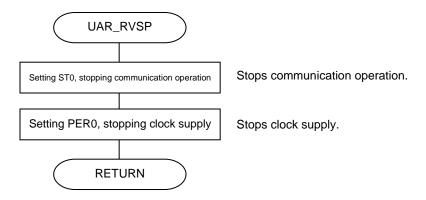
5. FLOWCHARTS

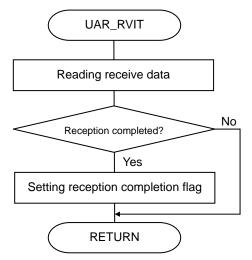


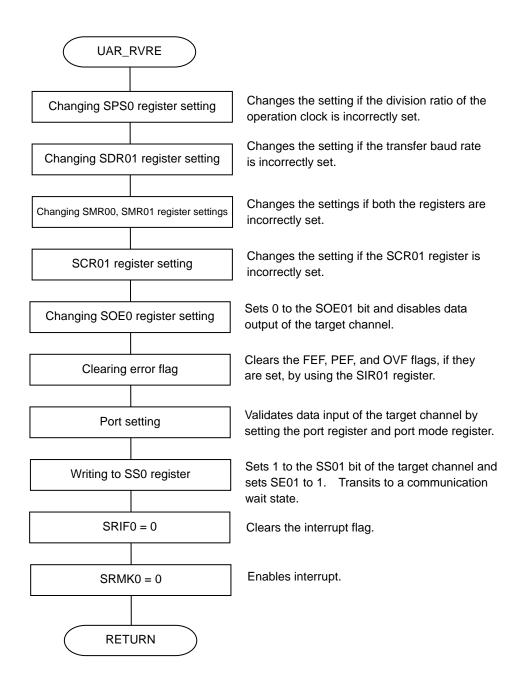


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