



78K0R/Kx3 Microcontroller

Sample Program

Operation Manual

(UART Reception (Serial Array Unit), ASM Source)

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Thoroughly evaluate this software on your set prior to use.

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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.

- $f_{CLK} = 20$ 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 μ s)
	Serial mode register 00 (SMR00)	
	Serial mode register 01 (SMR01)	
	Serial communication operation setting register 00 (SCR00)	Reception only, data length: 8 bits
	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_vct.asm	Vector processing	
K0R_init.asm ^{Note}	Initialization processing	
K0R_main.asm	Main processing	
K0R_sfr_set.asm	UART processing (reception mode)	

Note This file is commonly used by the sample programs.

4. FUNCTION EXPLANATIONS

[File name]

K0R_main.asm

Function

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

Function explanations

Function name	MMA_STRT
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.asm

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	–

5. FLOWCHARTS







