

# **3<sup>12</sup> Decoder (10+2 - Corresponds to HT6010/HT6012)**

D/N: HA0064E

## **Introduction**

This application shows how to use the HT48R50A-1 to simulate the HT6032 3<sup>12</sup> decoder function to decode the 10 Address bits and 2 Data bits for the HT6010/HT6012.

## **Function and Theory**

The 3<sup>12</sup> Decoder function can decode the 10 Address bits and 2 Data bits each of which can be set individually to either "1" and "0".

MCU: HT48R50A-1

Method: uses the HT6032 decoding process (see the HT6032 datasheet) to check the corresponding signal width to judge if the signal is either a "0", "1" or "floating". The corresponding width can decode skewed signals, the tolerance of which can be adjusted by MAXDURATION in the program.

Pin Function:

PB0~PB7: Address input pins

PC0~PC1: Address input pins

PD2~PD3: Data output pins

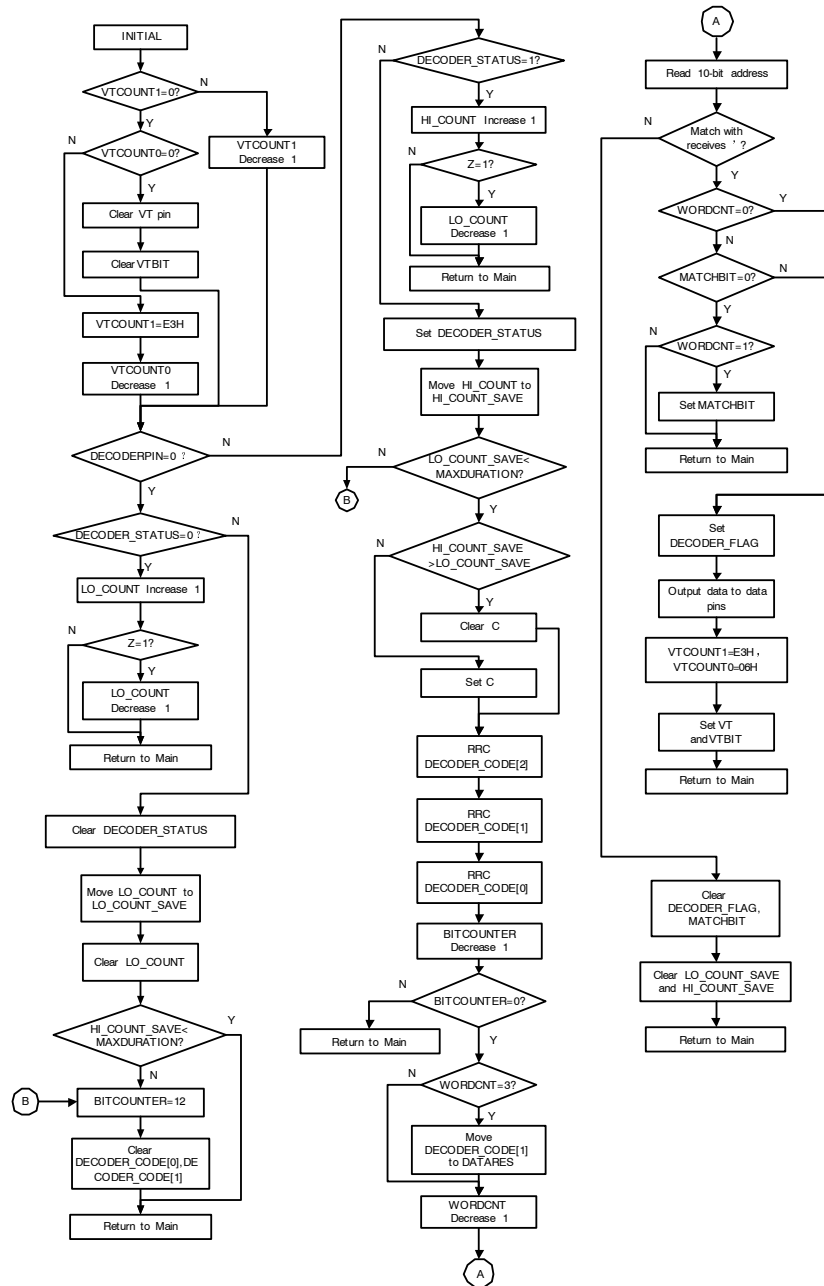
PA5: Serial data input pin

PD4: Valid transmission pin

Software IP: 3<sup>12</sup>\_10+2 Decoder Subroutine Usage Description Table

IP Name (Label)	System Resources	Functional Description
3 <sup>12</sup> _10+2D	Function	Decode 12 bits of information from the 3 <sup>12</sup> Encoder
	MCU	HT48R50A-1
	ROM	213
	RAM	15 Bytes: "HI_COUNT"、"LO_COUNT"、 "HI_COUNT_SAVE"、 "LO_COUNT_SAVE"、"BITCOUNTER"、 "DATARES"、"ADD_RES2"、 "ADD_RES1"、"ADD_RES0"、 "WORDCNT"、"VTCOUNT1"、 "VTCOUNT0"、"DECODER_CODE[2]"、 "DECODER_CODE[1]"、 "DECODER_CODE[0]"  5 Bits: "DECODER_EN"、"DECODER_FLAG"、 "DECODER_STATUS"、"MATCHBIT"、 "VTBIT"
	Stack	1 level used
	Subroutine/Macro	Subroutine
	I/O lines	14 I/O lines PB0~PB7: input pins(I/O), non-pull high PC0~PC1: input pins(I/O), non-pull high PD2~PD4: output pin(I/O), pull high PA5: input pin(I/O), pull high
	f <sub>sys</sub>	8MHz RC
	Other MCU resources	TMR INTERRUPT
	User interface	Set address pins CALL DECODER_INITIAL

### Program Flowchart



## **Program Description**

Refer to the ASM file that contains one main program code file for users to follow and add their own programs. Users need to add the INCLUDE 10+2.ASM and MAIN.ASM files to their project. The ASM text file include the DEFINE.ASM, INTERRUPT.ASM, STDUC.ASM, MEMORY.ASM and MACRO.ASM files that should be added in the project.