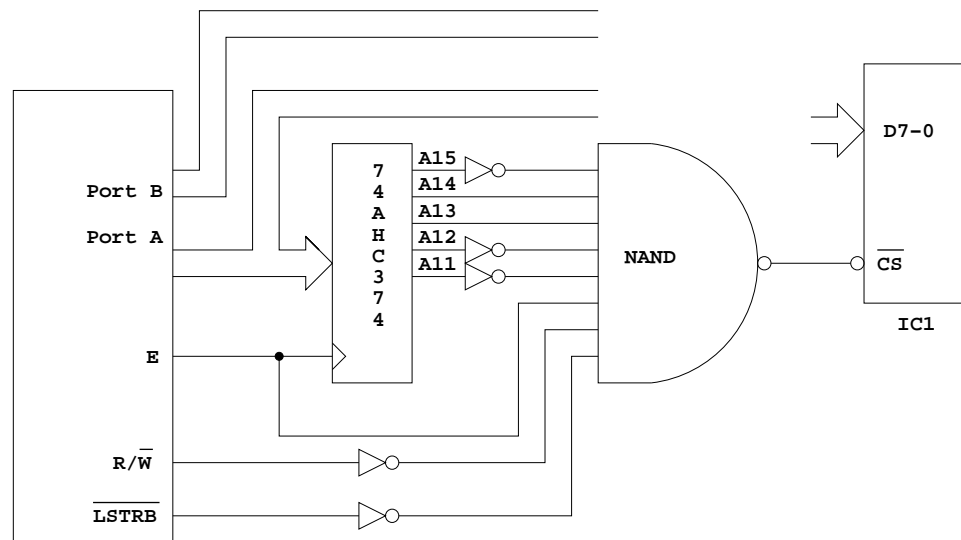


EE 308 — Homework 12

Due April 15, 2002

1. Write a C `#define` which will allow you to access the contents of address 0x0400 by using the name `P_EA`.
2. Write an Altera TDF file which has inputs A15-0, $R\bar{W}_n$, $LSTRB_n$ and E, and output W401. The output W401 should be high when you write to the byte at address 0x0401, and should be zero otherwise. (Remember, you can write to the byte at address 0x0401 by an 8-bit write to address 0x0401 or a 16-bit write to address 0x0400.)
3. Write an Altera TDF file which has inputs A15-0, $R\bar{W}_n$, $LSTRB_n$ and E, and output R402. The output R402 should be high when you read from the byte at address 0x0402, and should be zero otherwise.
4. The figure below shows the HC12 in Normal Expanded Wide mode connected to a chip called IC1.



- (a) Is IC1 an input or an output device? Why?
- (b) For what range of addresses is IC1 selected? Explain.
- (c) Should the data lines of IC1 be connected to the Port A pins or the Port B pins? Explain.
- (d) Explain the purpose of the 74AHC374 in the above circuit.
- (e) Explain the purpose of the NAND gate in the above circuit.

5. Of the three figures below, only one will work reliably in expanded mode.

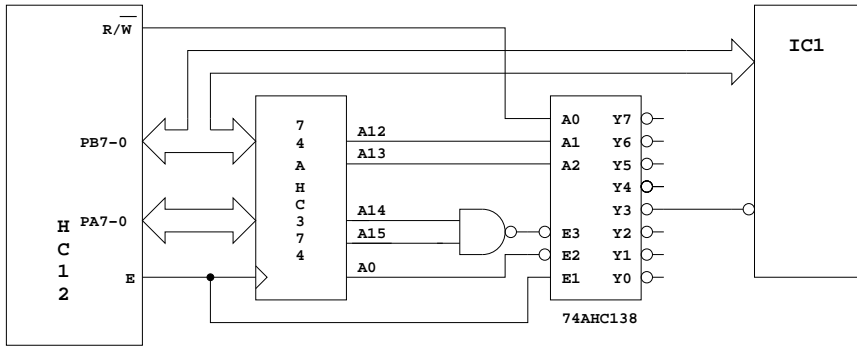


Figure (a)

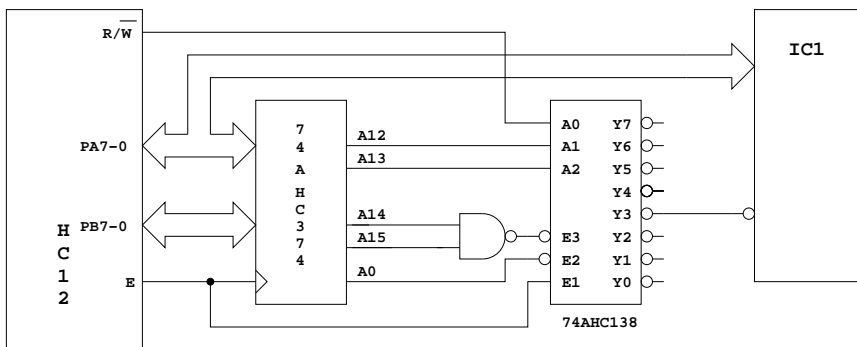


Figure (b)

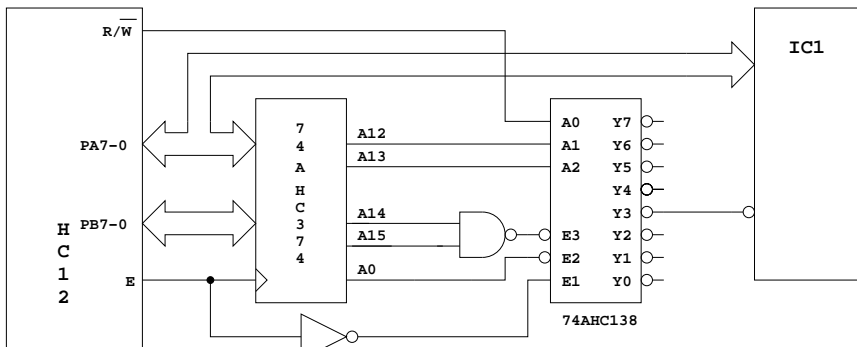


Figure (c)

(a) Figure (a): Will this work? If not, why not?

(b) Figure (b): Will this work? If not, why not?

(c) Figure (c): Will this work? If not, why not?