Hi Jie,

Many thanks for your recent application to Emutex. We are very interested in learning more about your experience and skills.

To better determine if your experience is suitable for this role we ask interview candidates to complete a brief technical exam on Embedded C programming, before we proceed to further stages of the interview process. We do this in the form of an "offline" exam. I have listed the questions below, and I would ask that you reply with your answers by email before Tuesday 6th at 1pm.

For each question we generally only require the essential lines of code to address the question. However, you may write a full C program and test it on your computer or embedded system. Answers must be in C code.

Please complete the exam by yourself. You will be asked to explain your answers should you be selected for interview. You may refer to manuals and books to help you complete the answers.

If you believe there is any ambiguity in the questions please state any assumptions that you need to make when answering the questions. Also, feel free to add comments to supplement the answers with more information if you like. I recommend that you keep the solutions as simple as possible.

Questions:

1. I/O Port at address 0x0900. Write a byte to it. Read a byte from it.
2. 2. Block of Memory at address 0xF0000000, size (in bytes) is 0x12345. Fill it with pattern 0xAABBCCDD using for loop. Also, describe what type of problems could be incurred?
3. Define a linked list of memory blocks. Allocate a block of 256 bytes and insert into the first node of list. Allocate a 2nd block of same size and add to the list. Then free each block from the list.
4. Send a message containing “Hello World” via TCP/IP socket to device located at 198.0.0.1. Then listen for a response and print the response.
5. Take a random 32-bit memory address, and align it to the nearest 1KB address boundary.

Once we receive your answers we will assess them and decide if we would like to schedule an interview with you by phone or in person.

We’re looking forward to speaking with you soon.