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There are only two threads in my program. The first one is for main and the second one is for producer. Please note that the consumer uses the same thread create for main at first.

From the memory mapping as shown below, we can find out that “00000083” is where the function ThreadCreate lies. Therefore, we set the breakpoint on line 006B, which is the line for “LCALL 0083H”.

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自動產生的描述

1. Threadcreate(main)

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自動產生的描述

As shown in the graph, there are nothing in the stack before creating the thread for main.

1. Threadcreate(producer)

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自動產生的描述

Then when jumping to 0083H, we push 006E on the stack so we can return back to continue executing our code. In ThreadCreate(), we move the SP to 0X3F to use 0X40~0X4F as stack 0. Next, we push the address of main(0X52) on the stack. Next,

we pushes DPL(0X08), DPH(0X09), the pointer to main, ACC(0X0A), B(0X0B), DPL(0X0C), DPH(0X0D), all of them are set to zero, and PSW(0X0E), indicating that we are using bank 0.

After that we move sp back to 0X09 using sp\_temp. And then, when finishing ThreadYield(), we return to 0X6E, popping two values out of the stack.

After that we assign SP as the saved\_sp[0](0X46). We pop PSW, DPH, DPL, B, and ACC. Then, we make return to main(). Now there is no value on the stack with SP pointing to 0X3F..

Next, in main, we called ThreadCreate() again.

We map the variable current\_thread to “00000024”. Therefore, by looking at the value at 0X24, we can know the current running node.

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自動產生的描述

A screenshot when producer is running (current\_thread = 0).

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自動產生的描述

A screenshot when consumer is running (current\_thread = 1).

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自動產生的描述