

A Note on Using the Compact Emulators for the 720 Family of MCUs

Please take note of the following problem in using the compact emulators for the 720 family of MCUs:

- On detecting stack overflows
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1. Products Concerned

- M34509T2-CPE (for the 4508 and 4509 groups, 4500 series)
- M34519T2-CPE (for the 4518, 4519, 4583, and 4584 groups, 4500 series)
- M34552T2-CPE (for the 4552, 4553, and 4556 groups, 4500 series)
- M34282T2-CPE (for the 4282 and 4283 groups, 720 series)

2. Description

The emulators concerned are equipped with a stack-level detection circuit to detect stack overflows independent of the one in the evaluation MCU.

Because this detection circuit malfunctions, your emulator may tell you the stack is overflowing even if the stack register SK of the MCU does not reach its maximum level. Note that the maximum level of the SK stack register is 8 in the 4500 series, and 4 in the 720 series.

2.1 Details of Malfunctioning

When executing the TABP instruction, the MCU occupies the emulator's stack one level as well as its own stack, and after executing the instruction, it releases the occupied level of both stacks. In each of the emulators concerned, to the contrary, the stack level detection circuit does not release the occupied level of its stack. So the emulator's stack consumption is accumulated one level each time of executing the TABP instruction. Consequently, the emulator may detect a stack overflow even though the stack register of the MCU does not yet reach its maximum level. Note, however, that this problem does not occur in actual MCUs.

3. **Solution**

We are going to rectify the firmware programs of the products concerned and publish them on our Web site. We will inform you of the time of publishing later in our tool news.

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