ROM-monitor settings and information

Kickstart Card settings

The jumper JP4 must be mounted for the ROM-monitor communication to work.

Embedded Workbench project settings

- You need a specially adapted linker command file for use with the ROM-monitor, called `LPC2106_ROMmonitor.xcl`. It is selected by default by the current project in the IAR Embedded Workbench.
- The serial port transfer rate for the ROM-monitor *must* be 9600 baud. To set it, choose **Project>Options** and click the **IAR ROM-monitor** tab in the **C-SPY Debugger** category.

ROM-monitor hardware resource usage

The ROM-monitor uses the following hardware resources of the LPC210x microcontroller:

- UART0
- VIC vector 0
- 4 Kbytes Flash ROM memory in the address range `0x0-0x00000FFF`
- 1 Kbyte RAM memory in the address range `0x40000000-0x400003FF`.

Your application must not use any of the above resources. This means that:

- all UART0 registers must be untouched by user code.
- `pclk` must be kept at the `XTAL` frequency divided by 4. This is the default after reset. If the `PLL` configuration and `VPBDIV` is altered this ratio must be maintained.
- `PINSEL0`: Bits `0:3` must be set to `0x5`.
- `MEMMAP` should always be `0x1`. (Exception vectors at start of Flash, address `0x0`.) Note that the exception vectors for the user code are remapped by the ROM-monitor to the start of user RAM.
- your application must never clear UART0 interrupt enable bit (bit 6 in `VICIntEnable`). In other words, you may never write a `1` to bit 6 in `VICIntEnClr`. (Writing a `0` to bit 6 in `VICIntEnable` is of course allowed, that doesn't change the interrupt enable status.)
- if IRQs are disabled for a long time (seconds) you will not be able to stop execution of your application by clicking the **Stop** button in C-SPY during that time. If you click **Stop** (or choose **Debug>Stop Debugging**) when IRQs have been disabled for seconds or more, the ROM-monitor communication with C-SPY might fail.
- you must not write to ROM-monitor RAM in the range `0x40000000-0x400003FF`.
- you must not erase/write to ROM-monitor Flash in the range `0x0-0x00000FFF`.

User memory

User Flash and breakpoints

User Flash starts at `0x00001000`. It is not possible to set breakpoints in Flash memory; thus user code in Flash cannot be debugged by the ROM-monitor.

User RAM and exception vectors

User RAM starts at `0x40000400`. The ROM-monitor remaps the start of the user exception vectors to the start of the user RAM.

Undefined exceptions

Because undefined exceptions are used for handling breakpoints, it is currently not possible to set breakpoints or step in an undefined exception handler.

Troubleshooting

If the ROM-monitor does not work as intended, make sure that your application isn't using any of the hardware resources described under *ROM-monitor hardware resource usage*.

If you are unable to find the cause of a problem, try resetting the Kickstart Card using the reset button on the card. Then restart the C-SPY Debugger in the Embedded Workbench IDE. You can also try disconnecting and reconnecting the power to the Kickstart Card, pressing the reset button and then restarting C-SPY.