Emulation Tech Note 9
Getting Connected with OMAP35xx

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1. Introduction

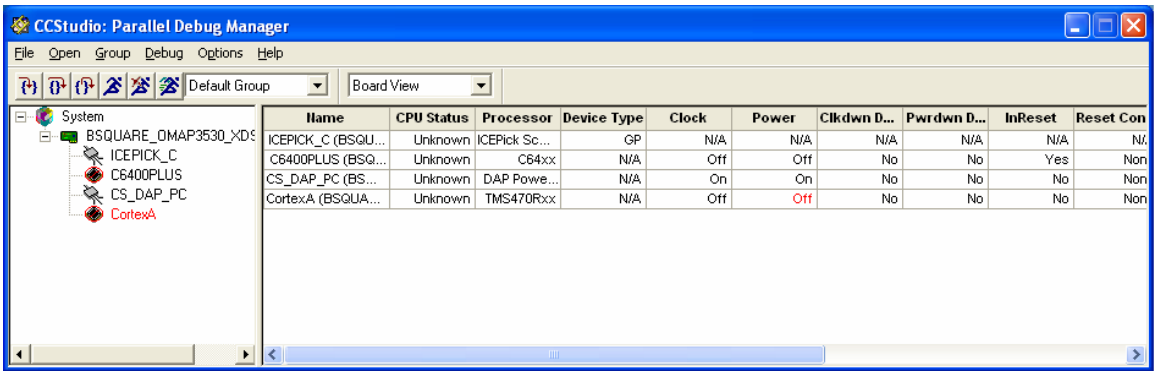
The TI OMAP35xx is a new family of TI application processors based on a combination of the ARM Cortex A-8 processor and C64+ core aimed for a wide range of possible applications, including portable navigation devices, Internet appliances and portable patient monitoring devices. This technical note provides details of getting around various connection issues of OMAP35xx processors from CCStudio_v3.3 via spectrum digital's XDS510USB emulators.

2. Getting connected with XDS510USB

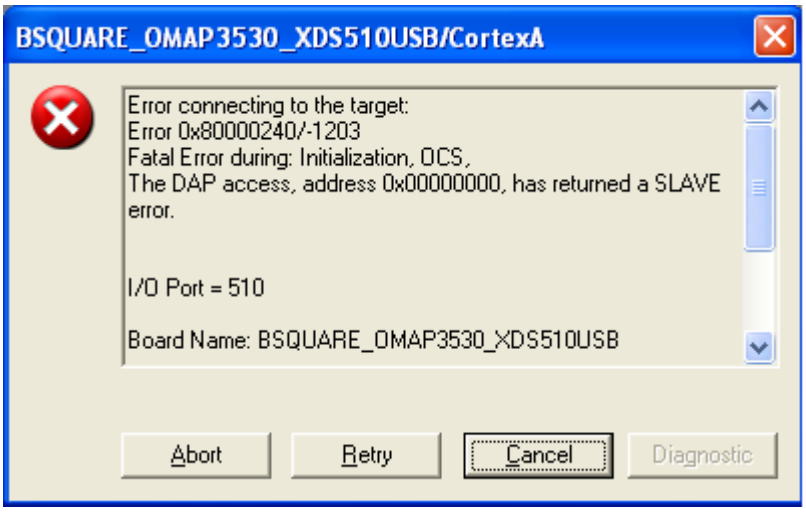
2.1 CONNECTION ISSUE 1

PROBLEM

The picture below shows CCStudio: Parallel Debug Manager(PDM) while connecting to a Bsquare board with OMAP 3530 processor. First connect to ICEPICK and then connect to the DAP from the PDM. Note that the power on the CortexA processor is OFF.

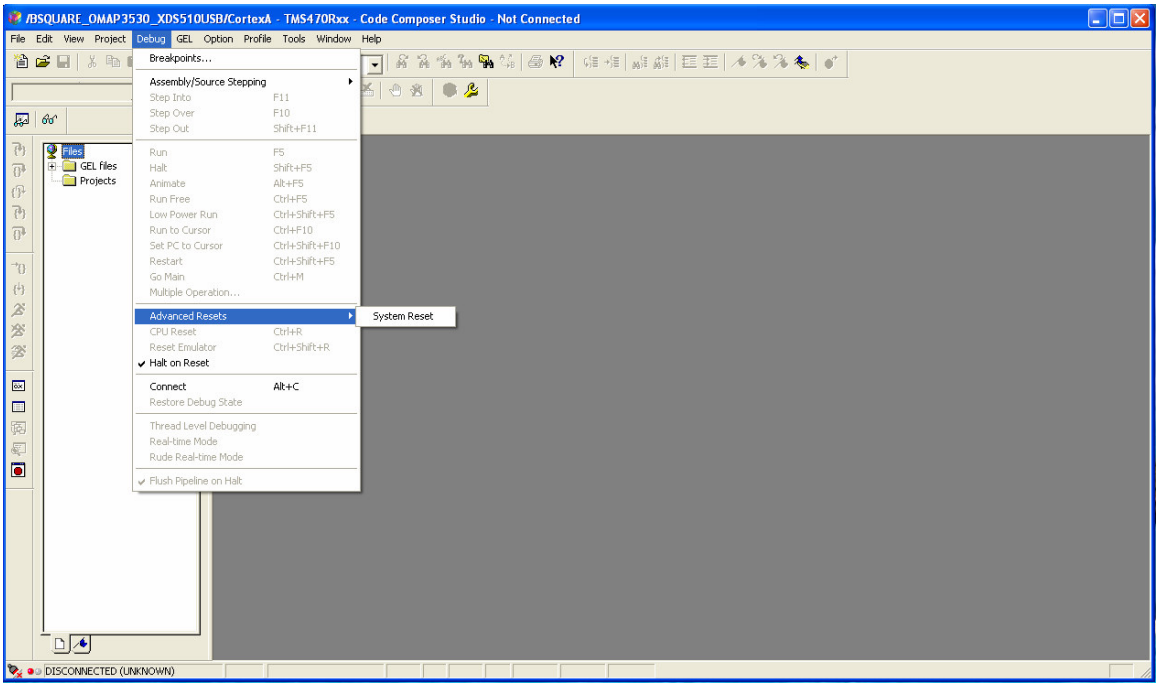


Now if we try to connect to CortexA processor while the power is off, we get a slave error as shown below.



SOLUTION

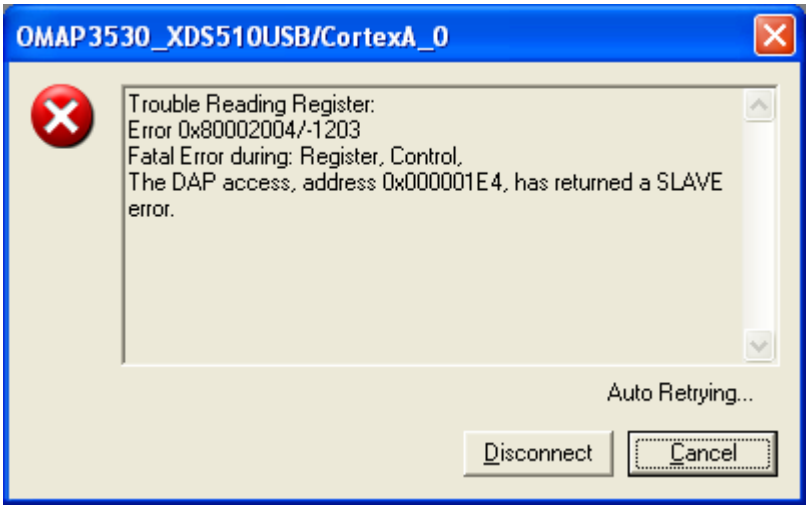
To turn the power back on the CortexA processor and keep it on do a Debug->HaltonReset followed by a Debug->AdvancedResets->System Reset as shown in the figure below before attempting to connect to the target. A system Reset is a hardware reset. Doing a system reset turns the power on the Cortex A8 processor and keeps it on for the debug session. We can connect to the target without any issues.



2.2 CONNECTION ISSUE 2

PROBLEM

Another common error that occurs while connecting to an OMAP35xx processor from CCStudio_v3.3 via SDXDS510USB emulator is shown below. The below error occurs when using a TI supplied gel file omap3430_cortexA.gel file in the function ETM_Enable_Access() while connecting to the target. The error occurs when accessing the ETM without turning the power on to the module.



SOLUTION

According to the ARM CortexA documentation, for ETM v1.1 and above the ETM module is powered down by default. A read to the ETM_POWER_DOWN_STATUS register turns the power on to the ETM module. The ETM registers should be accessed only after turning the power on to the module. Otherwise the processor generates a slave error as shown above.

The user can use a Spectrum Digital supplied gel file which fixes the connection issue. Or the user can modify the gel file they are using to turn the power on to the ETM module before accessing the ETM registers.