Application Note
CMX7031
Boot Procedure

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1 Introduction

To prevent incorrect operation of the CMX7031 after power-up it is important to ensure that the BOOTEN pins do not acquire an illegal state during power-up. Should this happen, there is a very small possibility that the CMX7031 will not operate. This application note describes the mechanism and correct operating procedure.

2 Discussion

The BOOTEN1 and BOOTEN2 pins are used for different purposes during power-up and C-BUS general reset operations. Care should be taken to ensure that the state of the pins is appropriate for the actual operating mode.

The BOOTEN pins have internal pull down resistors to allow a fast and efficient C-BUS general reset without the need to reload the Function Image™. However, in a power-up situation it is important to ensure that the BOOTEN pins do not acquire an illegal state.

During power-up only two options are valid: state 1 and state 3, to load the Function Image™ via C-BUS or from the attached E^2PROM, respectively. State 3 is also not valid if an E^2PROM is not attached to the CMX7031 or the E^2PROM is not programmed.

State	Operation	BOOTEN2	BOOTEN1
1	Load Function Image via C-BUS	1	1
2	Illegal state – must not be allowed to occur	1	0
3	Load Function Image via E^2PROM	0	1
4	Illegal state – must not be allowed to occur	0	0

In the case where the BOOTEN pins are hard-wired to their required function i.e. load Function Image™ from C-BUS or load Function Image™ from E^2PROM, the illegal states are not possible. However, allowing the BOOTEN pins to be under direct control of the host microcontroller has advantages with regard to C-BUS general reset.

Connecting the BOOTEN pins directly to the host microcontroller allows the most flexibility. The host microcontroller can change the state of the BOOTEN pins depending on the required operation. If the BOOTEN pins are changed to state 4 prior to a C-BUS general reset, the Function Image™ is not reloaded and the fastest reset condition can be achieved.

State	Operation	BOOTEN2	BOOTEN1
1	Load Function Image via C-BUS	1	1
2	Illegal state – must not be allowed to occur	1	0
3	Load Function Image via E^2PROM	0	1
4	Function Image™ not reloaded	0	0

In the case where the BOOTEN pins are connected directly to the host microcontroller, it is important to ensure that the CMX7031 starts operation after the BOOTEN pins have reached their correct logic levels. This is to ensure that the invalid BOOTEN pin state conditions, state 2 and 4, do not occur during power-up. A number of techniques can be used to guarantee this, such as delaying the master clock or delaying the voltage supply to the CMX7031.

Note: Logic 1 on BOOTEN1 or BOOTEN2 must be greater than 70% of DV_{DD}. Likewise Logic 0 must be less than 30% of DV_{DD}.

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