SpartanMC

SpartanMC software libraries

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MANPAGE – STARTUP_LOADER(3)

NAME

startup_loader – startup system library with support for updating of program memory content

SYNOPSIS

Link with *-lstartup_loader*

Can not be used together with *-lstartup*

DESCRIPTION

Overview

Provides startup code that allows for replacement of the processors program memory without re-synthesizing the hardware design.

The tool *spmc-loader* implements the mechanism described below on host side to support firmware upload.

Data format

The SPH file format is used to transfer the binary image to the target. For more information, see *sph*.

Upload process

The upload process is started after system reset when requested by the host. When linked with *-lstartup_loader* the startup routine will check for such request and enter the upload routine. Otherwise, the program currently present in memory will be executed as usual.

The initial request is followed by a handshake mechanism to avoid accidental corruption of memory when the hosts UART is transmitting some other unrelated data during system reset. If the handshake fails at any stage, the loader routine exits. Normal program execution follows in that case.

After completing the upload process the target system requires another reset to start execution of the uploaded program.

SYMBOLS

LOADER_UART_BASE
: Base address of UART peripheral used for data transfer. The only supported UART hardware currently is *uart_light* .

LIMITATIONS

The upload process can update all memory regions including DMA areas with the following limitations:

The loader code itself cannot be updated. The startup code placed before the loader code (at lower adresses) must not change in size. Both cases will be detected ba the upload routine and reported to the user.

SEE ALSO

spartanmc-project sph