

# ONZEROS™

SYSTEM LEVEL OPERATIONAL SOFTWARE

## Neutron Control's in system BootLOADER

for Flash Based MCU Devices on any hardware platform.

BootLOADER module and accompanying software have the capability to bootload **any** flash-based microcontroller including **any** AURIX™ variant using **any** hardware platform.

This is a flexible and easy to use system that permits organizations to incorporate the bootloader in their development process.

Using our Bootloader eliminates the need to build one from scratch at the end of application development. Instead, it is possible to follow basic configuration steps to customize this bootloader and use it to optimize application development.

For more information, visit [www.neutroncontrols.com](http://www.neutroncontrols.com)

Our BOOTLOADER is an independent application that is executed immediately after reset. The BootLOADER provides a means for a CLIENT system to pre-empt the platform application execution, opening a communication 'port' that allows for a target image update if required. The BootLOADER is also responsible for verifying the integrity of the platform target image as well as authenticating the CLIENT, where if upon an error, informs the CLIENT and is held up in the loader state.

The BootLOADER is configurable. This allows for: encrypted application loading, client authentication, dual image management, physical communication layer, industry standard protocols and available CLI shell for debugging.

The BootLOADER is an independent second-stage loader application. This means that it can be used to update binaries within predefined areas of FLASH as well as verifying those areas, then jump to that application stored in FLASH.

Neutron Controls provides a utility to accompany the BootLOADER: NC ImageStitcher™, which will create the image based on the post process output file. This utility will take in the *SREC/HEX* output file and create the binary image compatible with the NC BootLOADER which is used for transfer between the CLIENT and HOST.

The BootLOADER supports symmetrical AES-128 bit encryption as an option for image transfer. The BootLOADER configuration file supports two methods of encryption/decryption; one by hardware (when embedded hardware accelerator is available) or by software. The BootLOADER application can be delivered with only one of the two available cryptography implementations, or neither. Multiple forms of CLIENT authentication are supported.

There are three physical communication interfaces supported by the NC BootLOADER; CAN/CANFD, UART and Ethernet (TCP/UDP).

