



NANO54415 Platform Reference

Revision History

Rev 1.0	May 12, 2012	Initial release
Rev 1.1	July 19, 2012	Added boot monitor information

Introduction

This document provides the memory map and locations of reference materials for those who wish to add additional hardware to their NetBurner device. Hardware dimensions, connectors and pinouts are described in the datasheet for your NetBurner device at www.netburner.com.

MCF54415 Processor Information

The Freescale reference manual and datasheet provide in-depth information on the processor and is located in the \nburn\docs\Freescale directory of your NetBurner installation.

Development Board Schematic

The NANO Carrier development board schematic is located in the \nburn\docs\platform directory. This schematic can be used for design ideas in your own hardware implementation for power, RS-232, RS-485, and SD Flash card implementation.

Memory Map

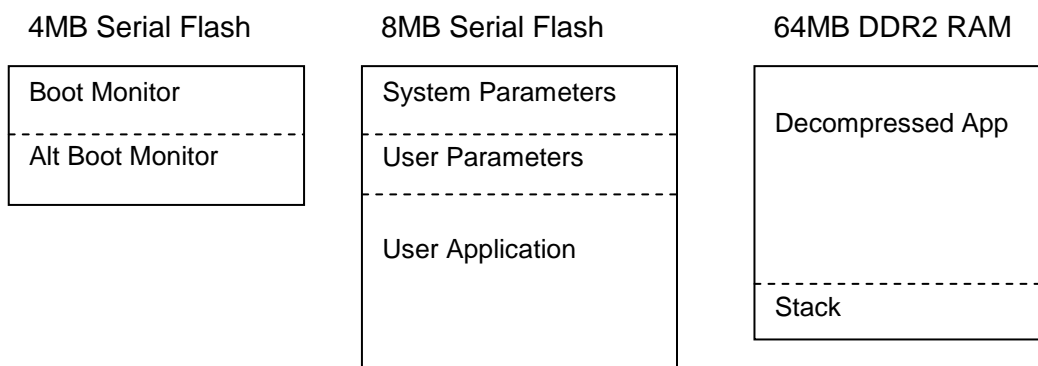
While most NetBurner devices have parallel Flash memory, the Nano54415 has SPI Flash, which means is not part of the processor's memory map. The two tables below show the processor memory map, followed by the SPI Flash memory map.

Memory Region	Address Range	Description
Undefined	0x00000000 to 0x01FFFFFF	undefined area to catch null pointers
SDRAM	0x40000000 to 0x43FFFFFF	64MB of SDRAM
VBR	0x40000000 to 0x400003FF	1K Processor Vector Base Register
RAMBAR	0x80000000 to 0x8000FFFF	64K Processor internal SRAM
IPSBAR	0xE0000000 to 0xFFFFFFFF	Processor internal device registers. Accessible using the sim structure defined in sim5441x.h

Memory Region	Address Range	Description
SPI Flash	0x00000000 to 0x007FFFFFFF	8MB SPI Flash memory
System Config Rec	0x00000000 to 0x00001FFF	8K System Configuration Storage
User Params	0x00002000 to 0x00003FFF	8K User Parameter Storage
Application Code	0x00004000 to 0x007FFFFFFF	Compressed Application Code

Boot Monitor and Serial Memory

The Nano54415 uses a 4MB serial flash chip that provides a normal boot monitor and alternate boot monitor images, and an 8MB serial flash chip to store the System Parameters, User Parameters, and User Application. Only the DDR2 RAM will appear in the MOD54415 memory map as described in the previous section. Using a serial flash for the boot monitor enables an easy recovery in the event an application corrupts the 8MB serial flash.



The Boot Monitor is executed first and provides a minimal boot implementation with only serial communication. The Boot Monitor will first attempt to run the User Application image. If the User Application is corrupted or does not exist, it will attempt to run the Alternate Boot Monitor. If the Alternate Boot Monitor cannot be run, the system will remain in the Boot Monitor and serial communication must be used to communicate with the module.

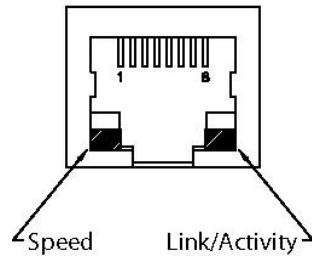
The Alternate Boot Monitor extends the functionality of the Boot Monitor to include network communication so a bad User Application recovery can be done through the network rather than serial.

RJ-45 Connector

LEDs

LED 1: Ethernet speed: 10 MB (off) or 100 MB (on)

LED 2: Link/Activity



Pinout Information

Pin	Signal	Pin	Signal
1	TX+	5	---
2	TX-	6	RX-
3	RX+	7	---
4	---	8	---