NetBurner

Networking in 1 Day!

CB34EX-100IR Platform Reference

Revision 1.31
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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.

MCF5234 Processor Block Diagram

The block diagram of the MCF5234 processor is shown below. The Freescale MCF5234/35 Reference Manual provides in-depth information on the processor and is located in the \Nburn\docs\FreescaleManuals directory of your NetBurner Network Development Kit (NNDK) installation.
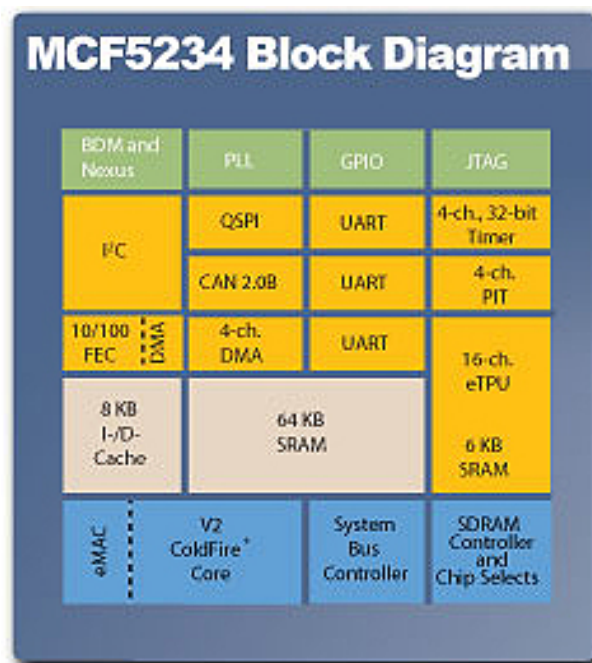
Memory Map

If you are adding peripherals to the NetBurner device via the address/data bus, then you can choose unused memory locations from the table below. Once an area has been selected, you will need to configure the appropriate chip select address and configuration registers in the MCF5234 processor. Please refer to the chip selects chapter of the Freescale MCF5234/35 Reference Manual for details on the register configuration.

Memory Region	Address Range	Region Description
Undefined	0x00000000 – 0x01FFFFFF	Undefined area to catch null pointers
SDRAM	0x02000000 – 0x027FFFFF	8MB of SDRAM
Unused	0x02800000 – 0x1FFFFFFF	Available to programmer
VBR	0x20000000 – 0x200003FF	MCF5234 vector base register
RAMBAR	0x20000000 – 0x2000FFFF	MCF5234 internal SDRAM
Unused	0x20010000 – 0x3FFFFFFF	Available to programmer
IPSBAR	0x40000000 – 0x7FFFFFFF	MCF5234 internal device registers; these are accessible via sim structure defined in sim5234.h
Unused	0x80000000 – 0xFFBFFFFF	Available to programmer
Start of Flash	0xFFC00000	Start of 2MB of flash memory
Flash Monitor	0xFFC00000 – 0xFFC03FFF	Boot monitor
Monitor Params	0xFFC04000 – 0xFFC05FFF	Monitor parameter storage
User Params	0xFFC06000 – 0xFFC07FFF	User parameter storage
Application Code	0xFFC08000 – ...	Compressed application code
End of Flash	0xFFDFFFFF	End of 2MB of flash memory

Power Connector

The power LED is illuminated while power is supplied. The power input connector is a standard 2.1-mm P5 type barrel jack. The center pin is positive and the outer shell is negative.
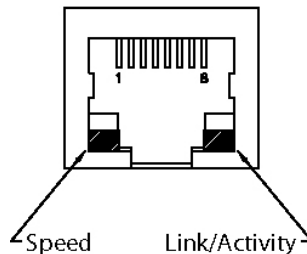
Power Connector Pinout Information

Pin	Signal
Center	7-30 VDC
Shell	GND

RJ-45 Connector

LEDs

- Left LED: Ethernet speed of 10Mbit/s (off) or 100Mbit/s (on)
- Right LED: Link and/or activity

RJ-45 Connector Pinout Information

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

Hardware Configuration

The DB9 and TSTRIP5 connector ports can be configured in the following ways:

	DB9 Connector Mode	TSTRIP5 Connector Mode
Configuration 1*	UART 0 RS-232	UART 1 RS-485 Half/Full Duplex
Configuration 2	UART 0 RS-232	CAN
Configuration 3	UART 1 RS-485 Half/Full Duplex	UART 0 RS-232
Configuration 4	UART 1 RS-485 Half/Full Duplex	CAN
Configuration 5	CAN	UART 0 RS-232
Configuration 6	CAN	UART 1 RS-485 Half/Full Duplex

*UART 0 RS-232 on DB9 and UART 1 RS-485 Half Duplex No Echo on TSTRIP5 is the factory default configuration

DB9 Connector Description

Pin	UART 0 RS-232	UART 1 RS-485	CAN
1	CD	---	---
2	RX	TX- (HD/FD)	CANL
3	TX	RX+ (FD)	GND*
4	DTR	---	---
5	GND	GND*	GND*
6	DSR	RX- (FD)	GND*
7	RTS	TX+ (HD/FD)	CANH
8	CTS	---	---
9	RI	Power Input (PIN)*	Power Input (PIN)*

*Optional pin usage provided that the jumpers are set for the pin

TSTRIP5 Connector Description

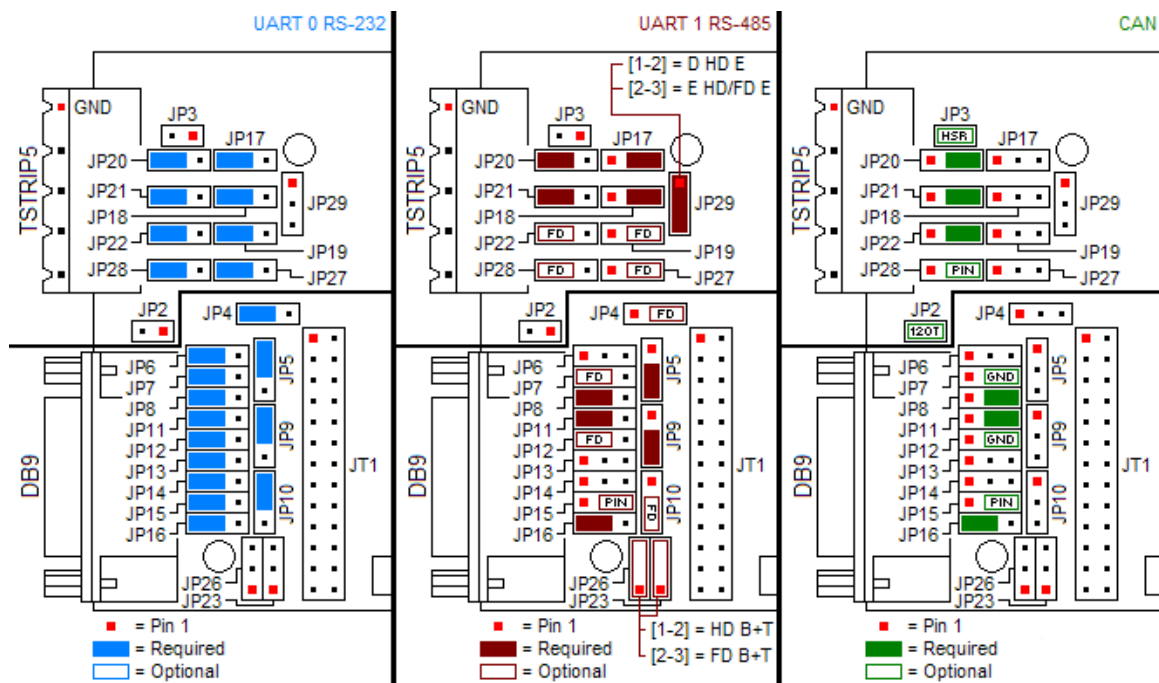| Pin	UART 0 RS-232	UART 1 RS-485	CAN
1	GND	GND	GND
2	RX	TX- (HD/FD)	CANL
3	TX	TX+ (HD/FD)	GND*
4	RTS	RX- (FD)	CANH
5	CTS	RX+ (FD)	Power Input (PIN)*

*Optional pin usage provided that the jumpers are set for the pin

Jumper Configuration Modes DB9 and TSTRIP5

Note that required jumpers are indicated by solid-filled rectangles. Optional jumpers are indicated by non-filled rectangles.

Abbreviation key:

- FD = Full duplex mode
- PIN = Power input
- GND = Ground
- 120T = 120-Ohm termination
- HSR = High Slew-Rate Control
- D HD E = Disable Half Duplex Echo
- E HD/FD E = Enable Half/full Duplex Echo
- HD B+T = Half Duplex Biasing and Termination
- FD B+T = Full Duplex Biasing and Termination

Note that no single mode can be used on both ports at the same time. For example, UART 0 RS-232 cannot be used on both DB9 and TSTRIP5 at the same time. JP23, JP26, and JP29 are used to configure UART 1 RS-485, regardless of which connector is used. JP2 and JP3 are used to configure CAN, regardless of which interface is used.

Additional UART 1 RS-485 jumper settings: for half duplex termination, set JP23[1-2] and JP26[1-2]. For full duplex termination, set JP23[2-3] and JP26[2-3]. To disable echo, set JP29[1-2]. To enable echo, set JP29[2-3].

Configuration Mode Pinout and Jumper Charts

UART 0 RS-232 via DB9 (J2)

Jumper	Configuration	Description	DB9 Pin
JP4	Connect 1-2	Data Set Ready	6
JP5	Connect 1-2	Receive	2
JP6	Connect 1-2	Data Carrier Detect	1
JP7	Connect 1-2	Data Set Ready	6
JP8	Connect 1-2	Receive	2
JP9	Connect 1-2	Request to Send	7
JP10	Connect 1-2	Transmit	3
JP11	Connect 1-2	Request to Send	7
JP12	Connect 1-2	Transmit	3
JP13	Connect 1-2	Clear to Send	8
JP14	Connect 1-2	Data Terminal Ready	4
JP15	Connect 1-2	Ring Indicator	9
JP16	Connect 1-2	Ground	5

UART 1 RS-485 via DB9 (J2)

Jumper	Configuration	Description	DB9 Pin
JP4	Connect 2-3 (if using full-duplex)	Z / Rx -	6
JP5	Connect 2-3	B / Tx -	2
JP6	Disconnect		
JP7	Connect 1-2 (if using full-duplex)	Z / Rx -	6
JP8	Connect 1-2	B / Tx -	2
JP9	Connect 2-3	A / Tx +	7
JP10	Connect 2-3 (if using full-duplex)	Y / Rx +	3
JP11	Connect 1-2	A / Tx +	7
JP12	Connect 1-2 (if using full-duplex)	Y / Rx +	3
JP13	Disconnect		
JP14	Disconnect		
JP15	Connect 2-3 (optional)	Power Input	9
JP16	Connect 1-2 (optional)	Ground	5
JP23 / JP26	Connect 1-2 (optional)	Half-Duplex Biasing and Termination	
	Connect 2-3 (optional)	Full-Duplex Biasing and Termination	
JP29	Connect 1-2	Disable Half-Duplex Echo	
	Connect 2-3	Enable Full or Half-Duplex Echo	

CAN via DB9 (J2)

Jumper	Configuration	Description	DB9 Pin
JP2	Connect (optional)	120-Ohm Termination	
JP3	Connect (optional)	High Slew-rate Control	
JP4	Disconnect		
JP5	Disconnect		
JP6	Disconnect		
JP7	Connect 2-3 (optional)	Ground	6
JP8	Connect 2-3	CAN Low	2
JP9	Disconnect		
JP10	Disconnect		
JP11	Connect 2-3	CAN High	7
JP12	Connect 2-3 (optional)	Ground	3
JP13	Disconnect		
JP14	Disconnect		
JP15	Connect 2-3 (optional)	Power Input	9
JP16	Connect 1-2 (optional)	Ground	5

UART 0 RS-232 via TSTRIP5 (JP1)

Jumper	Configuration	Description	TSTRIP5 Pin
JP17	Connect 1-2	Receive	2
JP18	Connect 1-2	Transmit	3
JP19	Connect 1-2	Request to Send	4
JP20	Connect 1-2	Receive	2
JP21	Connect 1-2	Transmit	3
JP22	Connect 1-2	Request to Send	4
JP27	Connect 1-2	Clear to Send	5
JP28	Connect 1-2	Clear to Send	5

UART 1 RS-485 via TSTRIP5 (JP1)

Jumper	Configuration	Description	TSTRIP5 Pin
JP17	Connect 2-3	B / Tx -	2
JP18	Connect 2-3	A / Tx +	3
JP19	Connect 2-3 (if using full-duplex)	Z / Rx -	4
JP20	Connect 1-2	B / Tx -	2
JP21	Connect 1-2	A / Tx +	3
JP22	Connect 1-2 (if using full-duplex)	Z / Rx -	4
JP27	Connect 2-3 (if using full-duplex)	Y / Rx +	5
JP28	Connect 1-2 (if using full-duplex)	Y / Rx +	5
JP23 / JP26	Connect 1-2 (optional)	Half-Duplex Biasing and Termination	
	Connect 2-3 (optional)	Full-Duplex Biasing and Termination	
JP29	Connect 1-2	Disable Half-Duplex Echo	
	Connect 2-3	Enable Full or Half-Duplex Echo	

CAN via TSTRIP5 (JP1)

Jumper	Configuration	Description	TSTRIP5 Pin
JP2	Connect (optional)	120-Ohm Termination	
JP3	Connect (optional)	High Slew-rate Control	
JP17	Disconnect		
JP18	Disconnect		
JP19	Disconnect		
JP20	Connect 2-3	CAN Low	2
JP21	Connect 2-3 (optional)	Ground	3
JP22	Connect 2-3	CAN High	4
JP27	Disconnect		
JP28	Connect 2-3 (optional)	Power Input	5