



Key Points

- Use as a high-performance single board computer or add Ethernet connectivity to a new or existing design
- Customize to suit any application with a low-cost development kit.

Features

- 32-bit ColdFire 5234 processor with eTPU Co-processor
- 8MB SDRAM and 2MB of Flash Memory
- 10/100 Ethernet
- 3 Serial Ports, SPI & I2C peripheral interface, access to address & data bus, and digital I/O
- SD/MMC card interface with included flash file system
- 8 timers
- Interrupts
- Industrial Temperature Range (-40°C to 85° C)
- DHCP/Static IP Support
- Serial data rates up to 230 Kbps
- 90+ Mbps UDP total throughput
- 50+ Mbps TCP data payload throughput

Note:

The MOD5234 can be purchased with or without an integrated Ethernet jack. The 100 version includes an Ethernet jack, the 200 version includes a 10-pin header for connection to an external Ethernet jack.

MOD5234

NetBurner's 10/100 Ethernet Core Module with eTPU Co-processor

Overview

The industrial temperature rated Mod5234 is based on the 32-bit Freescale MCF5234 running at 147MHz. In addition to the eTPU features the module provides 10/100 Ethernet, 2MB of Flash memory, 8MB of SDRAM, SPI, I2C, 3 UARTS and CAN.

eTPU for complex timing and I/O management

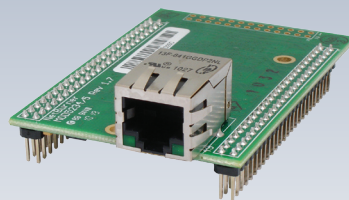
The programmable I/O controller has its own core and memory system, enabling it to perform complex timing and I/O management independently of the primary CPU. The eTPU is essentially an independent microcontroller designed for timing control, I/O handling, serial communications, motor control and engine control applications.

Network-Enable New or Existing Applications

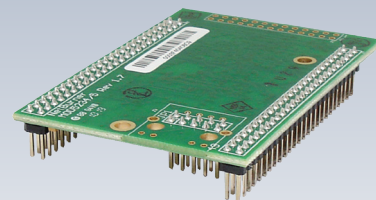
Add this module to an existing application to network enable your device through its serial ports, GPIO pins, or serial bit streams. If you have an application-specific motherboard, you can add a module to have a powerful processing platform that can function as the control processor for your product, or as a low cost network interface processor.

Customize to Suit Any Application

The NetBurner Network Development kit enables you to quickly and easily create custom applications. NetBurner has a solid reputation for development platforms to facilitate rapid product development, and the module kits are no exception. The kit includes the hardware platform, IDE, TCP/IP Stack, uC/OS Real-time operating system, Web Server, GNU C/C++ compiler and linker, Flash File System, GDB graphical debugger, end-user device configuration and flash update utilities, and much more.



P/N: MOD5234-100IR



P/N: MOD5234-200IR

Specifications

Processor & Memory

32-bit Freescale ColdFire 5234 running at 147.5MHz with 2Mbytes of on-chip flash, 8Mbytes SDRAM.

Network Interface

The 100 version includes integrates a 10/100 BaseT RJ-45 connector. The 200 version includes 10-pin Ethernet jack header.

Connectors

Two dual inline 50-pin headers

The 100 version has an RJ-45 Ethernet jack. The 200 version has a 10-pin Ethernet header.

Physical Characteristics

Dimensions (inches): 2.0" x 2.6"

Mounting Holes: 2 x 0.125" dia

Power

DC Input Voltage: 3.3V @ 380mA

Environmental Operating Temperature

-40° to 85°

Serial Interfaces

3 UART, I2C, SPI and up to 49 Digital I/O

Flash Card Support

FAT32 support for SD Cards up to 8GB (requires exclusive use of SPI signals). Card types include SD/MMC (up to 2GB) and SDHC.

Software & Protocols (included with development kit)

TCP/IP stack, Web Server, real-time operating system (RTOS), ANSI C/C++ compiler and linker, assembler, graphical debugger, NetBurner Eclipse integrated development environment (IDE), code update, configuration, and deployment tools. Please reference NetBurner Software Datasheet for a complete list of the protocols included with this development kit (www.NetBurner.com).

Ethernet Jack Pinout and Signal Description (200 version module)

The MOD5234-200IR version NetBurner Ethernet Core Module has a 10-pin header which enables you to quickly and easily connect to your own Ethernet jack. Table 2 provides descriptions of pin function of the module Ethernet jack header.

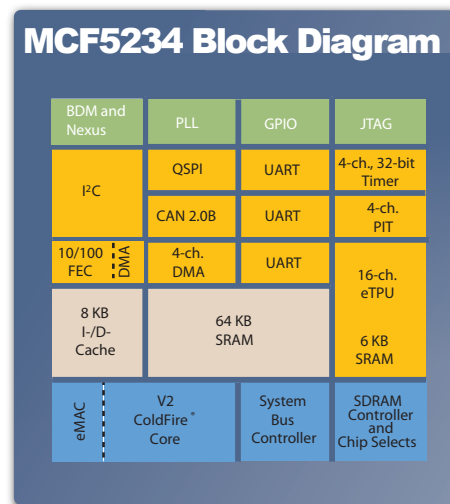
Table 1: Module Ethernet Jack Header Pinout and Signal Descriptions

Pin	Signal	Description
1	TX-	Transmit -
2	TX+	Transmit +
3	VCC ¹	2.5V
4	RX+	Recieve +
5	RX-	Recieve -
6	VCC ¹	2.5V
7	GND	Ground
8	N/C	Not Connected
9	LED	Link LED
10	LED	Speed LED

Note:

1. The 2.5V pins are used for the magnetics taps and LED power.

Figure 1: Freescale ColdFire Block Diagram



Note:

The MOD5234 is based on the Freescale ColdFire 5234 processor. For additional processor specific information please reference the Freescale Coldfire 5234 Manual.

MOD5234 Pinout and Signal Description

The MOD5234 module has two dual in-line 50 pin headers which enable you to quickly and easily connect to one of our standard NetBurner Carrier Boards, or a board you create on your own. Table 2 provides descriptions of pin function of the MOD5234 header.

Table 2: NetBurner MOD5234 Pinout and Signal Descriptions ⁽¹⁾

J1 Connector				J2 Connector				
Pin	Function	GPIO Port	Description	Pin	Function	Alt. Func.	GPIO Port	Description
1	GND		Ground	1	GND			Ground
2	GND		Ground	2	VCC3V			Input power 3.3 VDC
3	VCC3V		Input power 3.3 VDC	3	U0_RXD		PUARTL0	Data Bus - UART 0 Receive ⁴
4	R/*W		Data Bus - Read / NOT Write	4	U0_TXD		PUARTL1	Data Bus - UART 0 Transmit ⁴
5	*CS1 ¹	PCS1	Data Bus - Chip Select 1	5	TPUCH1		ETPU1	eTPU Channel 1
6	*CS2 ¹	PCS2	Data Bus - Chip Select 2	6	TPUCH0		ETPU0	eTPU Channel 0
7	*CS3 ¹	PCS3	Data Bus - Chip Select 3	7	TPUCH3		ETPU3	eTPU Channel 3
8	*OE		Data Bus - Output Enable	8	TPUCH2		ETPU2	eTPU Channel 2
9	*BS2		Byte Strobe for D16 to D23 (8 bits)	9	TPUCH5		ETPU5	eTPU Channel 5
10	*BS3		Byte Strobe for D24 to D31 (8 bits)	10	TPUCH4		ETPU4	eTPU Channel 4
11	*TIP		Data Bus - Transfer in Progress ²	11	TPUCH7		ETPU7	eTPU Channel 7
12	D16		Data Bus - Data 16	12	TPUCH6		ETPU6	eTPU Channel 6
13	*TA	PBUSCTL6	Data Bus - Transfer Acknowledge	13	TPUCH9		ETPU9	eTPU Channel 9
14	D18		Data Bus - Data 18	14	TPUCH8		ETPU8	eTPU Channel 8
15	D17		Data Bus - Data 17	15	TPUCH11		ETPU11	eTPU Channel 11
16	D20		Data Bus - Data 20	16	TPUCH10		ETPU10	eTPU Channel 10
17	D19		Data Bus - Data 19	17	TPUCH13		ETPU13	eTPU Channel 13
18	D22		Data Bus - Data 22	18	TPUCH12		ETPU12	eTPU Channel 12
19	D21		Data Bus - Data 21	19	TPUCH15		ETPU15	eTPU Channel 15
20	D24		Data Bus - Data 24	20	TPUCH14		ETPU14	eTPU Channel 14
21	D23		Data Bus - Data 23	21	U1_RXD	CAN0RX	PUARTL4	Data Bus - UART 1 Receive ⁴ or CAN 0 Receive
22	D26		Data Bus - Data 26	22	U1_TXD	CAN0TX	PUARTL5	Data Bus - UART 1 ⁴ or CAN 0 Transmit
23	D25		Data Bus - Data 25	23	*U1RTS	*U2RTS	PUARTL6	Data Bus - UART 1 ⁴ or UART 2 Request to Send ⁴
24	D28		Data Bus - Data 28	24	*U1CTS	*U2CTS	PUARTL7	Data Bus - UART 1 ⁴ or UART 2 Clear to Send ⁴
25	D27		Data Bus - Data 27	25	QSPI_CLK	I2C_SCL	PQSPI2	QSPI Clock or I ² C Clock ⁵
26	D30		Data Bus - Data 30	26	TCRCLK		PETUPU2	Clock the TCR counters or gate the TCR2 clock
27	D29		Data Bus - Data 29	27	QSPI_DIN	I2C_SDA	PQSPI1	QSPI Input or I ² C Data Line ⁵
28	*RSTI		Processor Reset Input	28	QSPI_DOUT		PQSPI0	QSPI Data Out
29	D31		Data Bus - Data 31	29	*U0_CTS		PUARTL3	UART0 Clear To Send ⁴
30	*RSTO		Processor Reset Output	30	QSPI_CS0		PQSPI3	QSPI Chip Select 0
31	CLK_OUT ³		Buffer Clock Out (CLKOUT-73.728 Mhz) ³	31	DT0_IN	*DREQ0	PTIMER1	DMA Timer 0 In or DMA Request 0
32	A0		Data Bus - Address 0	32	UTPUODIS		PETPU1	eTPU Channel Output Disable Signal (Upper)
33	A1		Data Bus - Address 1	33	DT2OUT	DACK2	PTIMER4	DMA Timer 2 Out or DMA Acknowledge 2
34	A2		Data Bus - Address 2	34	DT1OUT	DACK1	PTIMER2	DMA Timer 1 Out or DMA Acknowledge 1
35	A3		Data Bus - Address 3	35	LTPUODIS		PETPU0	eTPU Channel Output Disable Signal (Lower)
36	A4		Data Bus - Address 4	36	DT0OUT	DACK0	PTIMER0	DMA Timer 0 Out or Acknowledge 0
37	A5		Data Bus - Address 5	37	DT1_IN	DT1_OUT	PTIMER3	DMA Timer 1 In or DMA Timer 1 Out
38	A6		Data Bus - Address 6		+ ⁶	*DREQ1		DMA Request 1
39	A7		Data Bus - Address 7	38	*U0_RTS		PUARTL2	Data Bus - UART 0 Request To Send ⁶
40	A8		Data Bus - Address 8	39	I2C_SDA	CAN0RX	PFEC12C1	Data Bus - I ² C Data Line ⁵ or CAN 0 Receive ⁴
41	A9		Data Bus - Address 9	40	*QSPI_CS1	SD_CKE	PQSPI4	QSPI Chip Select 1 or SDRAM Clock Enable
42	A10		Data Bus - Address 10	41	U2_RXD		PUARTH0	Data Bus - UART 2 Receive ⁴
43	A11		Data Bus - Address 11	42	I2C_SCL	CAN0TX	PFEC12C0	Data Bus - I ² C Clock Line ⁵ or CAN 0 Transmit
44	A12		Data Bus - Address 12	43	*IRQ1		PIRQ1	External Interrupt 1
45	A13		Data Bus - Address 13	44	U2_TXD		PUARTH1	Data Bus - UART 2 Transmit ⁴
46	A14		Data Bus - Address 14	45	*IRQ3		PIRQ3	External Interrupt 3
47	A15		Data Bus - Address 15	46	GND			Ground
48	VCC3V		Input power 3.3 VDC	47	*IRQ5		PIRQ5	External Interrupt 5
49	GND		Ground	48	*IRQ7		PIRQ7	External Interrupt 7
50	GND		Ground	49	GND			Ground
				50	VCC3V			Input power 3.3 VDC

Note:

- Asterisk (*) denotes active low. All input/output lines are 3.3V only.
- The TIP signal is the logical AND of *CS1, *CS2 and *CS3. TIP can be used to control an external data bus buffer for the data bus signals. An example circuit design can be found on the Module Development Board schematic. An external data bus buffer is recommended for any designs that use data bus signals D16 - D31.
- The CLKOUT signal is 1/2 the system frequency of 147.456 MHz.
- Each UART can be clocked from an internal or external source. For external clocks, each UARTn, can be clocked by the corresponding DTn_IN input pin.
- If using I2C, the module must add pull-up resistors to SDA/SCL.
- Plus sign (+) denotes additional alternate pin function

Part Numbers

NetBurner MOD5234 "LC" Development Kit

P/N: NNDK-MOD5234LC-KIT

Kit includes all the hardware and software you need to customize the included MOD5234-100IR NetBurner module. This kit includes the NetBurner MOD-DEV-70 Development Carrier Board.

NetBurner MOD5234 Development Kit

P/N: NNDK-MOD5234-KIT

Kit includes all the hardware and software you need to customize the included MOD5234-100IR NetBurner module. This kit includes the NetBurner MOD-DEV-100 Development Carrier Board.

NetBurner MOD5234-100IR Ethernet Core Module with On-board Ethernet Jack

P/N: MOD5234-100IR

The MOD5234 Board is a industrial temperature, RoHS compliant part.

NetBurner MOD5234-200IR Ethernet Core Module with 10-pin Ethernet Jack Header

P/N: MOD5234-200IR

The MOD5234 Board is a industrial temperature, RoHS compliant part.

Note:

The MOD5234-200IR version has a 10-pin Ethernet jack header. Please see Table 1 "Module Ethernet Jack Header Pinout and Signal Descriptions" for additional information.

NetBurner SSL/SSH Security Suite (optional)

P/N: NBSSL-MOD-LIC

Secure webpages, and securly exchange data to or from your NetBurner device..

NetBurner SNMP Option

P/N: NBSNMPV1-LIC-100

Add Simple Network Management Protocol (SNMP) capability to your NetBurner Device.

Ordering Information

E-mail: sales@netburner.com

Online Store: www.NetBurner.com

Telephone: 1-800-695-6828



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