N e t B u r n e r

Networking in 1 Day!

Features

• Companion network development kit includes all of the hardware and software you will need to develop embedded network applications. This includes an RTOS, TCP/IP, Web Server, C/C++ Compiler, IDE, Graphical Debugger, configuration and deployment tools.

• Start writing your application code immediately, instead of integrating development tools or building custom hardware.

• Use as a high-performance single board computer or as a network interface processor.

• Module supports 3 serial ports, address bus, data bus, 8 timers, GPIO, SPI, I2C, interrupts, watchdog and more.

• Integrated 147Mhz 32-bit Coldfire 5270 processor with integrated 10/100 Ethernet and MAC.

• 8MB SDRAM, 512KB of Flash Memory.

• Temperature Range:
 -40°C to 85° C.

Note:

The MOD5270 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.

MOD5270
NetBurner's High Performance Embedded Network Core Module

Overview

The MOD5270 and processor modules are low cost, high performance single board computers that are excellent solutions to network-enable both existing and new product designs with 10/100BaseT Ethernet. Based on the Freescale ColdFire 5270 32-bit processors with integrated 10/100 Ethernet MAC, they have plenty of horsepower for the most demanding applications (rated at 141+MIPS with 147Mhz clock).

Network-Enable New or Existing Applications

Add a module to an existing application to network-enable your device though its serial ports, GPIO pins, or serial bit streams. If you have an application-specific motherboard, you can add a module and 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. The kit includes the MOD5270 module, development board, TCP/IP Stack, uC/OS Real-time operating system, Web Server, GNU C/C++ compiler and linker, GDB graphical debugger, end-user device configuration, flash update utilities, and much more.

Real 32-Bit Performance

Traditionally, companies using 8 and 16-bit platforms find it nearly impossible to run resource-intensive applications on fast Ethernet connections. The NetBurner Embedded Network Core Module features a Web-based control interface, a full 32-bit architecture providing 141+ MIPS, and the ability to send and receive E-mail. This processing platform provides the horsepower to handle both 10/100 Ethernet connections and resource-demanding applications with ease and flexibility.
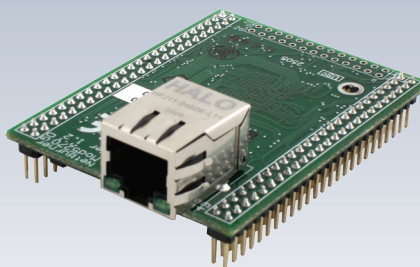
P/N: MOD5270-100IR

P/N: MOD5270-200IR

Specifications

Processor and Memory
32-bit Freescale ColdFire 5270 running at 147MHz with 8MB SDRAM, 512KB Flash, and 64KB SRAM

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: 2.0" x 2.6"
Mounting Holes: 2 x 0.125" dia

Note:
For more detailed diagrams please reference the *MOD5270-100IR or the MOD5270-200IR Mechanical Drawing* which can be found on the NetBurner MOD5270 Ethernet Core Module web page.

Power
DC Input Voltage: 3.3V. @450mA

Environmental Operating Temperature
-40° to 85° C

Serial Interfacees
3 UARTS, I^{2}C, SPI, 47 Digital I/O

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

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 MOD5270-**200**IR 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.
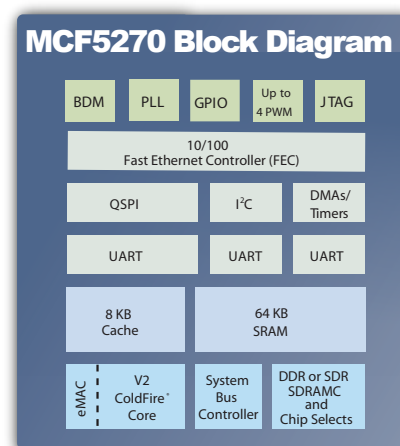
Figure 2: **Freescale ColdFire Block Diagram**

Note:
The MOD5270 is based on the Freescale ColdFire 5270 processor. For additional processor specific information please reference the *Freescale Coldfire 5270 Manual.*

MOD5270 Pinout and Signal Description

The MOD5270 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 1 provides descriptions of pin function of the MOD5270 header.

Table 1: **NetBurner MOD5270 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			Available power 3.3V@450mA
3	VCC3V		Available power 3.3V@450mA	3	U0_RXD		PUARTL0	Data Bus - UART 0 Receive[6]
4	R/*W		Data Bus - Read / NOT Write	4	U0_TXD		PUARTL1	Data Bus - UART 0 Transmit[6]
5	*CS1	PCS1	Data Bus - Chip Select 1	5	NC			No Connect
6	*CS2	PCS2	Data Bus - Chip Select 2	6	D14		PDATAH14	Data Bus - Data 14[10]
7	*CS3	PCS3	Data Bus - Chip Select 3	7	D13		PDATAH13	Data Bus - Data 13[10]
8	*OE		Data Bus - Output Enable	8	D15		PDATAH15	Data Bus - Data 15[10]
9	*BS2		Byte Strobe for D16 to D23 (8 bits)	9	D11		PDATAH11	Data Bus - Data 11[10]
10	*BS3		Byte Strobe for D24 to D31 (8 bits)	10	D12		PDATAH12	Data Bus - Data 12[10]
11	*TIP		Data Bus - Transfer in Progress[2]	11	D10		PDATAH10	Data Bus - Data 10[10]
12	D16		Data Bus - Data 16[4]	12	D9		PDATAH9	Data Bus - Data 9[10]
13	*TA	PBUSCTL6	Data Bus - Transfer Acknowledge	13	D8		PDATAH8	Data Bus - Data 8[10]
14	D18		Data Bus - Data 18	14	GND			Ground
15	D17		Data Bus - Data 17	15	D0		PDATAL0	Data Bus - Data 0[10]
16	D20		Data Bus - Data 20	16	D1		PDATAL1	Data Bus - Data 1[10]
17	D19		Data Bus - Data 19	17	D4		PDATAL4	Data Bus - Data 4[10]
18	D22		Data Bus - Data 22	18	D2		PDATAL2	Data Bus - Data 2[10]
19	D21		Data Bus - Data 21	19	D5		PDATAL5	Data Bus - Data 5[10]
20	D24		Data Bus - Data 24	20	D6		PDATAL6	Data Bus - Data 6[10]
21	D23		Data Bus - Data 23	21	U1_RXD		PUARTL4	Data Bus - UART 1 Receive[6]
22	D26		Data Bus - Data 26	22	U1_TXD		PUARTL5	Data Bus - UART 1 Transmit[6]
23	D25		Data Bus - Data 25	23	D3		PDATAL3	Data Bus - Data 3[10]
24	D28		Data Bus - Data 28	24	D7		PDATAL7	Data Bus - Data 7[10]
25	D27		Data Bus - Data 27	25	QSPI_CLK	I2C_SCL	PQSPI2	QSPI Clock[8] or I2C Clock[7]
26	D30		Data Bus - Data 30	26	DT3_OUT	*U2_RTS	PTIMER6	DMA Timer Out 3 or UART 2 Request To Send[6]
27	D29		Data Bus - Data 29[5]	+[9]		QSPI CS3		QSPI Chip Select 3
28	*RSTI		Processor Reset Input	27	QSPI_DIN	I2C_SDA	PQSPI1	QSPI Input or I2C Data Line[7]
29	D31		Data Bus - Data 31	28	QSPI_DOUT		PQSPI0	QSPI Data Out
30	*RSTO		Processor Reset Output	29	*U0_CTS		PUARTL3	UART0 Clear To Send[6]
31	CLKOUT		Buffer Clock Out (CLKOUT-73.728 Mhz)[3]	30	QSPI_CS0		PQSPI3	QSPI Chip Select 0[8]
32	A0		Data Bus - Address 0[4]	31	DT0_IN	*DREQ0	PTIMER1	DMA Timer 0 In or DMA Request 0
33	A1		Data Bus - Address 1	32	*U1_RTS	*U2_RTS	PUARTL6	Data Bus - UART 1[6] or UART 2 Request to Send[6]
34	A2		Data Bus - Address 2	33	*U1_CTS	*U2_CTS	PUARTL7	Data Bus - UART 1[6] or UART 2 Clear to Send[6]
35	A3		Data Bus - Address 3	34	DT1_OUT	*DACK1	PTIMER2	DMA Timer 1 Out or DMA Acknowledge 1
36	A4		Data Bus - Address 4	35	DT2_IN	DTOUT2	PTIMER5	DMA Timer 2 In/Out
37	A5		Data Bus - Address 5	36	DT0_OUT	*DACK0	PTIMER0	DMA Timer 0 Out or Acknowledge 0
38	A6		Data Bus - Address 6	37	DT1_IN	DT1_OUT	PTIMER3	DMA Timer 1 In or DMA Timer 1 Out
39	A7		Data Bus - Address 7	+[9]		*DREQ1		DMA Request 1
40	A8		Data Bus - Address 8	38	*U0_RTS		PUARTL2	Data Bus - UART 0 Request To Send[6]
41	A9		Data Bus - Address 9	39	I2C_SDA		PFEC12C0	Data Bus - I2C Data Line[7]
42	A10		Data Bus - Address 10	40	*QSPI_CS1		PQSPI4	QSPI Chip Select 1[8]
43	A11		Data Bus - Address 11	41	U2_RXD		PUARTH0	Data Bus - UART 2 Receive[6]
44	A12		Data Bus - Address 12	42	I2C_SCL		PFECI2C1	Data Bus - I2C Clock Line[7]
45	A13		Data Bus - Address 13	43	*IRQ1		PIRQ1	External Interrupt 1
46	A14		Data Bus - Address 14	44	U2_TXD		PUARTH1	Data Bus - UART 2 Transmit[6]
47	A15		Data Bus - Address 15[5]	45	*IRQ3		PIRQ3	External Interrupt 3
48	VCC3V		Available power 3.3V@450mA	46	GND			Ground
49	GND		Ground	47	*IRQ5		PIRQ5	External Interrupt 5
50	GND		Ground	48	*IRQ7		PIRQ7	External Interrupt 7
				49	GND			Ground
				50	VCC3V			Available power 3.3V@450mA

Note:

1. Asterisk (*) denotes active low. All input/output lines are 3.3V only.

2. The TIP signal is the logical AND of *CS1, *CS2 and *CS3. TIP can 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.

3. The CLKOUT signal is 1/2 the system frequency of 147.456 MHz.

4. This is the LSB (Least-significant Byte). This bit is unused for 16-bit ports.

5. This is the MSB (Most-significant byte)

6. 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.

7. If using I2C, the module must add pull-up resistors to SDA/SCL.

8. The Mod5270 provides QSPI chip selects QSPI_CS0, QSPI_CS1 & QSPI_CS3, but not QSPI_CS2.

9. Plus sign (+) denotes additional alternate pin function

10. 32-bit mode only

Part Numbers

NetBurner MOD5270LC Development Kit
(Eclipse Ethernet Development Kit)
P/N: NNDK-MOD5270LC-KIT
Kit includes all the hardware and software you need to customize the included NetBurner MOD5270 module. This kit includes the MOD-DEV-70 Carrier Board.

NetBurner MOD5270 Development Kit
P/N: NNDK-MOD5270-KIT
Includes all the hardware and software you need to customize the included NetBurner MOD5270 module. This kit includes the NetBurner MOD-DEV-100 Carrier Board.

NetBurner MOD5270 Ethernet Core Module
P/N: MOD5270-100IR
The MOD5270-100IR Module is a commercial temperature, RoHS compliant part.

NetBurner MOD5270-200IR Ethernet Core Module
with 10-pin Ethernet Jack Header
P/N: MOD5270-200IR
The MOD5270 Board is a industrial temperature, RoHS compliant part.

Note:
This 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 Option
P/N: NBSSL-MOD-LIC
Secure webpages, and securely 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.

Note:
1. All NetBurner hardware produced after July of 2006 is RoHS compliant.
2. Freescale offers the NetBurner M5270PROMO Development Kit (P/N: M5270PROMO) a binary release of the development kit. Core modules can be purchased directly in single piece (P/N: MOD5270) or 100 piece quantities (P/N: MOD5270BX).

Ordering Information

E-mail: sales@netburner.com
Online Store: www.NetburnerStore.com
Telephone: 1-800-695-6828