MOD5272

Ethernet Core Module

100 Version

NetBurner

DATASHEET

Key Points

- Use as a high-performance single board computer or add Ethernet connectivity to a new or existing design
- Customize with a development kit and begin writing application code immediately!
- Industrial temperature range (-40°C to 85°C)

Device Connectivity

- 10/100Mbps Ethernet
- 2 UARTs and SPI
- SD/MMC flash card ready
- 29 digital I/Os
- 3 PWM
- 16-bit address bus and 16-bit data bus with 3 chip selects

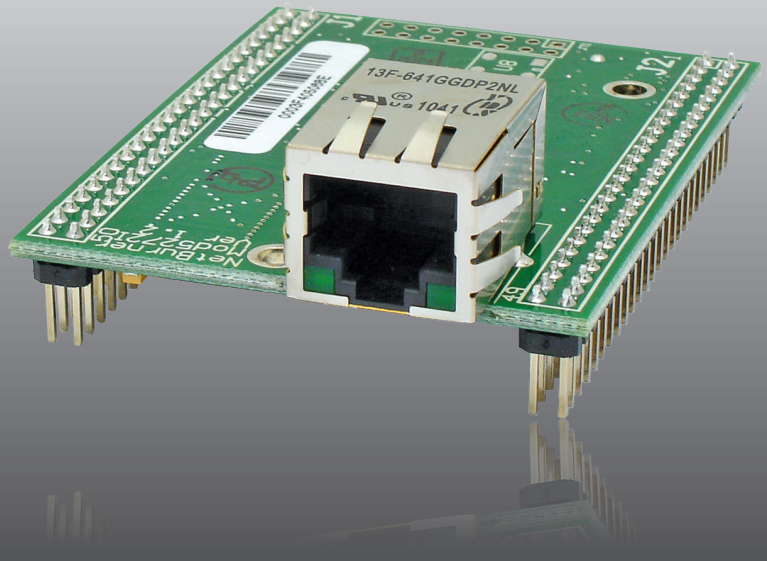
Performance and memory

- 32-bit 62.5 MHz Processor
- 8MB SDRAM and 2MB Flash

Companion development kit

The following is available with the development kit:

- Customize any aspect of operation including web pages, data filtering, or custom network applications
- Development software: NB Eclipse IDE, Graphical debugger, deployment tools, and examples
- Communication software: TCP/IP stack, SSL/TLS 1.3, HTTP web server, FTP, E-mail, and flash file system
- System software: NBRTOS, ANSI C/C++ compiler and linker



Specifications

Processor and Memory
32-bit Freescale ColdFire 5272 running at 62.5MHz with 8MB SDRAM and 2MB Flash

Network Interface
10/100 BaseT with RJ-45 connector (100 Version)

Data I/O Interface (J1 and J2)
- Up to 2 UARTs
- Up to 29 digital I/O
- Up to 2 external timer in and up to 3 timer outputs
- Up to 4 external IRQs
- 3 PWM
- SPI interface
- SD/MMC flash card ready
- 16-bit address bus and 16-bit data bus with 3 chip selects

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.

Serial Configurations
The UARTs can be configured in the following way:
- 2 TTL ports
- Add external level shifter for RS-232
- Add external level shifter for RS-422/485 (up to two ports)

Note: UART 0/1 also provides RTS/CTS hardware handshaking signals.

LEDs
Link and Speed (100 Version only, on RJ-45)

Physical Characteristics
Dimensions (inches): 2.60” x 2.00”
Mounting Holes: 2 x 0.125” dia

Power
DC Input Voltage: 3.3V @ 500mA typical

Environmental Operating Temperature
-40° to 85° C

RoHS Compliance
The Restriction of Hazardous Substances guidelines ensure that electronics are manufactured with fewer environment harming materials.

Part Numbers

MOD5272 Ethernet Core Module (100 Version, with RJ-45)
Part Number: MOD5272-100IR

MOD5272 Development Kit
Part Number: NNDK-MOD5272-KIT
Kit includes all the hardware and software you need to customize the included platform hardware. See NetBurner Store product page for package contents. Note: Includes the MOD-DEV-100 development board.

Ordering Information

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

Pinout and Signal Description

The module has two dual in-line 50 pin headers which enable you to connect to one of our standard NetBurner Carrier Boards, or a board you create on your own. Table 1-2 provides descriptions of pin function of the module header.

Table 1: **Pinout and Signal Descriptions for J1 Connector** (1)

J1 Connector					
Pin	**CPU Pin**	**Function 1**	**General Purpose I/O**	**Description**	**Max Voltage**
1		GND		Ground	-
2		GND		Ground	-
3		VCC3V		Input Power 3.3 VDC	3.3VDC
4	P14	R/$\overline{W}$		Read / NOT Write[1]	3.3VDC
5	K10	$\overline{CS1}$		Chip Select 1[1,2]	3.3VDC
6	P11	$\overline{CS2}$		Chip Select 2[1,2]	3.3VDC
7	N11	$\overline{CS3}$		Chip Select 3[1,2]	3.3VDC
8	P13	$\overline{OE}$		Output Enable[1]	3.3VDC
9	E12	$\overline{BS2}$		Byte Strobe for D16 to D23 (8 bits)[1]	3.3VDC
10	E13	$\overline{BS3}$		Byte Strobe for D24 to D31 (8 bits)[1]	3.3VDC
11		$\overline{TIP}$		Transfer in Progress[1,2]	3.3VDC
12	A5	D16		Data Bus - Data 16	3.3VDC
13	F3	$\overline{TA}$	PB5	Transfer Acknowledge[1]	3.3VDC
14	A6	D18		Data Bus - Data 18	3.3VDC
15	B6	D17		Data Bus - Data 17	3.3VDC
16	B7	D20		Data Bus - Data 20	3.3VDC
17	C7	D19		Data Bus - Data 19	3.3VDC
18	A8	D22		Data Bus - Data 22	3.3VDC
19	A7	D21		Data Bus - Data 21	3.3VDC
20	F12	D24		Data Bus - Data 24	3.3VDC
21	B8	D23		Data Bus - Data 23	3.3VDC
22	F14	D26		Data Bus - Data 26	3.3VDC
23	F13	D25		Data Bus - Data 25	3.3VDC
24	G13	D28		Data Bus - Data 28	3.3VDC
25	G12	D27		Data Bus - Data 27	3.3VDC

Note:

1. Active low signals, such as $\overline{RESET}$, are indicated with an overbar.
2. The TIP signal is the logical AND of $\overline{CS1}$, $\overline{CS2}$ and $\overline{CS3}$. 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.
3. J2-31 represents TIN0 and PB4/UART0 external baud rate clock. These two signals are tied together on the module PCB.
4. The ColdFire 5272 processor supports USB device mode only. A 48Mhz oscillator must be installed in locaton U8 of the Mod5272.

J1 Connector (continued)					
Pin	CPU Pin	Function	General Purpose I/O	Description	Max Voltage
26	H14	D30		Data Bus - Data 30	3.3VDC
27	G14	D29		Data Bus - Data 29	3.3VDC
28	M12	$\overline{\text{RESET}}$		Processor Reset Input[1]	3.3VDC
29	H13	D31		Data Bus - Data 31	3.3VDC
30	F4	$\overline{\text{RSTOUT}}$		Processor Reset Output[1]	3.3VDC
31		CLK_OUT		Clock Out (CLKOUT-62.5 MHz)	3.3VDC
32	D10	A0		Data Bus - Address 0	3.3VDC
33	B12	A1		Data Bus - Address 1	3.3VDC
34	A12	A2		Data Bus - Address 2	3.3VDC
35	A13	A3		Data Bus - Address 3	3.3VDC
36	A14	A4		Data Bus - Address 4	3.3VDC
37	B13	A5		Data Bus - Address 5	3.3VDC
38	B14	A6		Data Bus - Address 6	3.3VDC
39	C12	A7		Data Bus - Address 7	3.3VDC
40	C13	A8		Data Bus - Address 8	3.3VDC
41	C14	A9		Data Bus - Address 9	3.3VDC
42	D12	A10		Data Bus - Address 10	3.3VDC
43	C11	A11		Data Bus - Address 11	3.3VDC
44	B11	A12		Data Bus - Address 12	3.3VDC
45	A11	A13		Data Bus - Address 13	3.3VDC
46	C10	A14		Data Bus - Address 14	3.3VDC
47	D9	A15		Data Bus - Address 15	3.3VDC
48		VCC3V		Input Power 3.3 VDC	3.3VDC
49		GND		Ground	-
50		GND		Ground	-

Note:

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3. J2-31 represents TIN0 and PB4/UART0 external baud rate clock. These two signals are tied together on the module PCB.
4. The ColdFire 5272 processor supports USB device mode only. A 48Mhz oscillator must be installed in locaton U8 of the Mod5272.

Table 2: **NetBurner MOD5272 Pinout and Signal Descriptions [4] for J2 Connector**

J2 Connector						
Pin	**CPU Pin**	**Function 1**	**Function 2**	**General Purpose I/O**	**Description**	**Max Voltage**
1		GND			Ground	-
2		VCC3V			Input power 3.3 VDC	3.3VDC
3	H1	UART0_RX		PB1	UART 0 Receive	3.3VDC
4	H4	UART0_TX		PB0	UART 0 Transmit	3.3VDC
5		NC			No Connect	3.3VDC
6	D11			PC14	Port C - Pin 14	3.3VDC
7	E11			PC13	Port C - Pin 13	3.3VDC
8	E10			PC15	Port C - Pin 15	3.3VDC
9	G11			PC11	Port C - Pin 11	3.3VDC
10	F11			PC12	Port C - Pin 12	3.3VDC
11	H11			PC10	Port C - Pin 10	3.3VDC
12	J13			PC9	Port C - Pin 9	3.3VDC
13	J12			PC8	Port C - Pin 8	3.3VDC
14		GND			Ground	-
15	L2			PC0	Port C - Pin 0	3.3VDC
16	L13			PC1	Port C - Pin 1	3.3VDC
17	K12			PC4	Port C - Pin 4	3.3VDC
18	L14			PC2	Port C - Pin 2	3.3VDC
19	K13			PC5	Port C - Pin 5	3.3VDC
20	K14			PC6	Port C - Pin 6	3.3VDC
21	K1	UART1_RX	T0IN		UART 1 Receive or Timer Input 0	3.3VDC
22	K4	UART1_TX	T0OUT		UART 1 Transmit or Timer Output 0	3.3VDC
23	K11			PC3	Port C - Pin 3	3.3VDC
24	J11			PC7	Port C - Pin 7	3.3VDC
25	L5	SPI_CLK	BUSW1		SPI Clock or Bus Width Bit 1	3.3VDC

Note:

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3. J2-31 represents TIN0 and PB4/UART0 external baud rate clock. These two signals are tied together on the module PCB.
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J2 Connector (continued)						
Pin	CPU Pin	Function 1	Function 2	General Purpose I/O	Description	Max Voltage
26	P1	SPI_CS3	T3OUT	PA7	SPI Chip Select 3 or Timer Output 3	3.3VDC
27	P4	SPI_DIN			SPI Data In	3.3VDC
28	N4	SPI_DOUT	WSEL		SPI Data Out or Bus Width Selection	3.3VDC
29	H2	$\overline{\text{UART0\_CTS}}$		PB2	UART 2 Clear To Send[1]	3.3VDC
30	M5	SPI_CS0	BUSW0		SPI Chip Select 0 or Bus Width Bit 0	3.3VDC
31	L6 , G3	T0IN	UART0_CLK	PB4	Timer Input 0 or UART 0 Clock[3]	3.3VDC
32	N5	PWM0			PWM 0 Output Signal/Input Capture	3.3VDC
33	E2	USB_TXEN		PA5	USB Transmit Enable	3.3VDC
34	P5	PWM1	TOUT1		PWM 1 Output Signal/Input Capture or Timer Output 1	3.3VDC
35	K2	SPI_CS2	$\overline{\text{UART1\_CTS}}$		SPI Chip Select 2 or UART 1 Clear To Send[1]	3.3VDC
36	M6	T0OUT		PB7	Timer Output 0	3.3VDC
37	K6	PWM2	T1IN		PWM 2 Output Signal/Input Capture or Timer Input 1	3.3VDC
38	H3	$\overline{\text{UART0\_RTS}}$		PB3	UART 0 Request To Send[1]	3.3VDC
39	D2	USB_TP		PA0	USB Transmit Serial Data	3.3VDC
40	L1	SPI_CS1		PA11	SPI Chip Select 1	3.3VDC
41	F2	USB_D-			USB Line Driver Low	3.3VDC
42	D1	USB_RP		PA1	USB Receive Serial Data	3.3VDC
43	M4	$\overline{\text{IRQ1}}$	USB_WOR		External Interrupt 1[1]	3.3VDC
44	F1	USB_D+			USB Line Driver High	3.3VDC
45	N3	$\overline{\text{IRQ3}}$			External Interrupt 3[1]	3.3VDC
46		GND			Ground	-
47	K3	$\overline{\text{IRQ5}}$	$\overline{\text{UART1\_RTS}}$		External Interrupt 5[1] or UART 1 Request To Send[1]	3.3VDC
48	M3	$\overline{\text{IRQ6}}$		PA15	External Interrupt 6[1]	3.3VDC
49		GND			Ground	-
50		VCC3V			Input Power 3.3 VDC	3.3VDC

Note:

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