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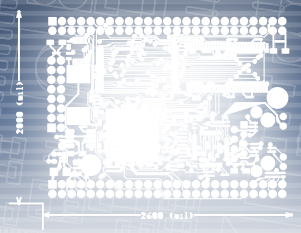
Understanding Embedded - Microcontroller, Microprocessor, FPGA Modules

Embedded - Microcontroller, Microprocessor, and FPGA Modules are fundamental components in modern electronic systems, offering a wide range of functionalities and capabilities. Microcontrollers are compact integrated circuits designed to execute specific control tasks within an embedded system. They typically include a processor, memory, and input/output peripherals on a single chip. Microprocessors, on the other hand, are more powerful processing units used in complex computing tasks, often requiring external memory and peripherals. FPGAs (Field Programmable Gate Arrays) are highly flexible devices that can be configured by the user to perform specific logic functions, making them invaluable in applications requiring customization and adaptability.

Applications of Embedded - Microcontroller,

Details	
Product Status	Obsolete
Module/Board Type	MCU, Ethernet Core
Core Processor	ColdFire 5272
Co-Processor	-
Speed	62MHz
Flash Size	2MB
RAM Size	8.004MB
Connector Type	RJ-45, 2x50 Header
Size / Dimension	2.6" x 2" (66.04mm x 50.8mm)
Operating Temperature	0°C ~ 70°C
Purchase URL	https://www.e-xfl.com/product-detail/netburner/mod5272-100cr

NetBurner
Networking in 1 Day!



Features

- Companion development kit includes all of the hardware and software you will need to develop embedded 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 2 serial ports, 4 timers, address bus, data bus, GPIO, SPI, interrupts, PWM, USB and more.
- Integrated 62Mhz 32-bit Coldfire 5272 processor with integrated 10/100 Ethernet and MAC.
- 8MB SDRAM, 2MB of Flash Memory.
- Temperature Range: 0°C to 70° C.

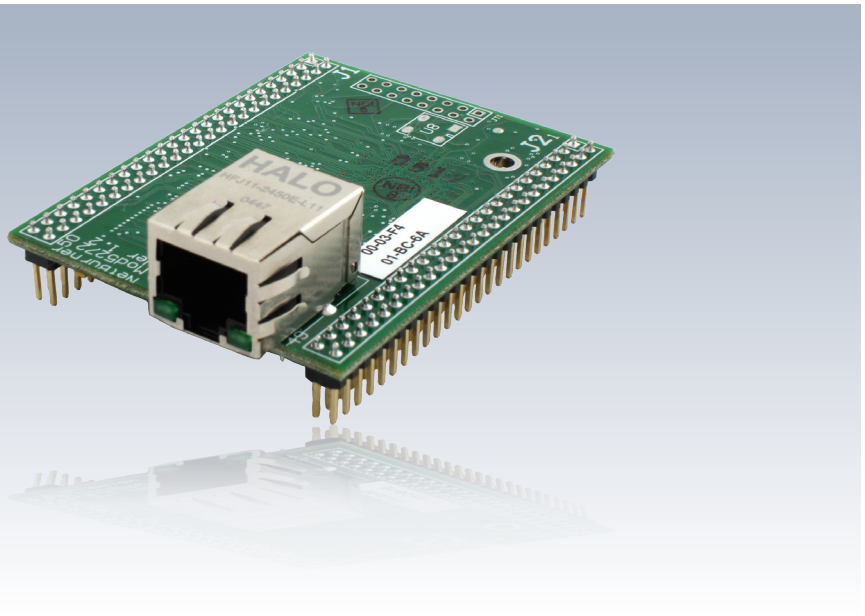
MOD5272
NetBurner's High Peformance Embedded Network Core Module

Introduction
The MOD5272 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 5272 32-bit processors with integrated 10/100 Ethernet MAC, they have plenty of horsepower for the most demanding applications (rated at 60+MIPS with 62Mhz clock).

Network-Enable New or Existing Applications
Add a module to an existing application 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. NetBurner has a solid reputation for development platforms to facilitate rapid product development, and the module kits are no exception. The kit includes the MOD5272 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 Embeded Network Core Module features a Web-based control interface, a full 32-bit architecture providing 60+ 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.



MOD5272 Pinout and Signal Description

MOD5272[1] Pin	Header J1	Header J2
1	GND	GND
2	GND	VCC3V
3	VCC3V	URXD0
4	R/*W	UTXD0
5	*CS1[2]	NC
6	*CS2[2]	PC14
7	*CS3[2]	PC13
8	*OE	PC15
9	*BS2	PC11
10	*BS3	PC12
11	*TIP[2]	PC10
12	D16	PC9
13	*TA	PC8
14	D18	GND
15	D17	PC0
16	D20	PC1
17	D19	PC4
18	D22	PC2
19	D21	PC5
20	D24	PC6
21	D23	URXD1
22	D26	UTXD1
23	D25	PC3
24	D28	PC7
25	D27	SPICLK
26	D30	SPI_CS3
27	D29	SPI_DIN
28	*RSTI	SPI_DOUT
29	D31	PB2 (H2)
30	*RSTO	SPI_CS0
31	CLKOUT-62.5MHz	TIN0/PB4/UART0CLK[3]
32	A0	PWM1
33	A1	PA5
34	A2	PWM2/TOUT1
35	A3	SPI_CS2
36	A4	TOUT0
37	A5	TIN1
38	A6	PB3 (H3)
39	A7	PA0
40	A8	SPI_CS1
41	A9	USB_D-
42	A10	PA1
43	A11	IRQ1
44	A12	USB_D+
45	A13	IRQ3
46	A14	GND
47	A15	IRQ5
48	VCC3V	PA15/IRQ6
49	GND	GND
50	GND	VCC3V

[1]The ColdFire 5272 processor supports USB device mode only. A 48Mhz oscillator must be installed in locaton U8 of the Mod5272.

[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]J2-31 represents TIN0 and PB4/UART0 external baud rate clock. These two signals are tied together on the module PCB.

Ordering Information

Part Number and Description

MOD5272-100IR	Core Module Industrial Temperature RoHS
NNDK-MOD5272-KIT	Development Kit

Specifications

Processor
32-bit Freescale ColdFire 5272 running at 62MHz

Software Development
NetBurner Network Development Kit includes: MOD5272 module, development board, TCP/IP stack, Web Server, real-time operating system (RTOS), ANSI C/C++ compiler and linker, assembler, graphical debugger, integrated development environment (IDE), code update, configuration, and deployment tools.

Network Interface
10/100 BaseT with RJ-45 connector

Network Protocols Supported
Complete protocol support included. Please reference NetBurner Software Datasheet (www.NetBurner.com)

Connectors
Two dual inline 50-pin headers

Physical Characteristics
Dimensions: 2.0" x 2.6"
Mounting Holes: 2 x 0.125" dia

Power Requirements
DC Input Voltage: 3.3V @500mA

Environmental
Operating Temperature: -40°C to 85°C

MOD5272 Block Diagram