



**eZ80F915005MODG**

**eZ80F91  
Mini Enet Module**

**Product Specification**

PS023603-0907

PRELIMINARY



**Warning:** DO NOT USE IN LIFE SUPPORT

### **LIFE SUPPORT POLICY**

ZILOG'S PRODUCTS ARE NOT AUTHORIZED FOR USE AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS WITHOUT THE EXPRESS PRIOR WRITTEN APPROVAL OF THE PRESIDENT AND GENERAL COUNSEL OF ZILOG CORPORATION.

### **As used herein**

Life support devices or systems are devices which (a) are intended for surgical implant into the body, or (b) support or sustain life and whose failure to perform when properly used in accordance with instructions for use provided in the labeling can be reasonably expected to result in a significant injury to the user. A critical component is any component in a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system or to affect its safety or effectiveness.

### **Document Disclaimer**

©2007 by Zilog, Inc. All rights reserved. Information in this publication concerning the devices, applications, or technology described is intended to suggest possible uses and may be superseded. ZILOG, INC. DOES NOT ASSUME LIABILITY FOR OR PROVIDE A REPRESENTATION OF ACCURACY OF THE INFORMATION, DEVICES, OR TECHNOLOGY DESCRIBED IN THIS DOCUMENT. ZILOG ALSO DOES NOT ASSUME LIABILITY FOR INTELLECTUAL PROPERTY INFRINGEMENT RELATED IN ANY MANNER TO USE OF INFORMATION, DEVICES, OR TECHNOLOGY DESCRIBED HEREIN OR OTHERWISE. The information contained within this document has been verified according to the general principles of electrical and mechanical engineering.

Z8, Z8 Encore!, Z8 Encore! XP, Z8 Encore! MC, Crimzon, eZ80, and ZNEO are trademarks or registered trademarks of Zilog, Inc. All other product or service names are the property of their respective owners.



**ISO 9001:2000  
FS 507510**

Zilog products are designed and manufactured under an ISO registered 9001:2000 Quality Management System. For more details, please visit [www.zilog.com/quality](http://www.zilog.com/quality).

# Revision History

Each instance in Revision History reflects a change to this document from its previous revision. For more details, refer to the corresponding pages and appropriate links in the table below.

| Date        | Revision Level | Description                                | Page No           |
|-------------|----------------|--------------------------------------------|-------------------|
| August 2007 | 3              | Changed eZ80F915005MOD to eZ80F915005MODG  | <a href="#">i</a> |
| August 2004 | 2              | Added new dimensions figure for the module | All               |
| May 2004    | 1              | Original issue                             | All               |

# Table of Contents

|                                                 |           |
|-------------------------------------------------|-----------|
| <b>eZ80F91 Mini Enet Module</b> .....           | <b>1</b>  |
| Module Features .....                           | 1         |
| eZ80F91 Controller Features .....               | 2         |
| Block Diagram .....                             | 3         |
| <b>Pin Description</b> .....                    | <b>4</b>  |
| Mini Module Connector J1 – Peripheral Bus ..... | 4         |
| Mini Module Connector J2 – I/O Ports .....      | 7         |
| <b>Onboard Component Description</b> .....      | <b>10</b> |
| I/O Connector .....                             | 10        |
| Peripheral Bus Connector .....                  | 10        |
| Ethernet PHY and RJ45 Connector .....           | 10        |
| Ethernet LEDs .....                             | 10        |
| 5 MHz Clock .....                               | 10        |
| Memory .....                                    | 11        |
| IrDA Transceiver .....                          | 11        |
| Serial Interface Ports .....                    | 12        |
| Physical Dimensions .....                       | 12        |
| Absolute Maximum Ratings .....                  | 13        |
| Module Bill of Materials .....                  | 14        |
| <b>Schematics</b> .....                         | <b>16</b> |
| <b>Customer Support</b> .....                   | <b>18</b> |

# eZ80F91 Mini Enet Module

Zilog's eZ80F91 Mini Enet Module is a compact, high-performance Ethernet module specially designed for the rapid development and deployment of embedded systems requiring control and Internet/Intranet connectivity.

This expandable module is powered by Zilog's latest power-efficient, high-speed, optimized pipeline architecture eZ80F91 microcontroller, a member of Zilog's family of eZ80Acclaim!® Flash Microcontrollers.

The eZ80F91 is a high-speed single-cycle instruction-fetch microcontroller, which can operate with a clock speed of 50 MHz. It can operate in Z80®-compatible addressing mode (64 KB) or full 24-bit addressing mode (16 MB).

The rich peripheral set of eZ80F91 Mini Enet Module makes it suitable for a variety of applications, including industrial control, IrDA connectivity, communication, security, automation, point-of-sale terminals, and embedded networking applications.

## Module Features

Features of eZ80F91 Mini Enet Module include:

- Factory-default 5 MHz crystal oscillator input, 50 MHz maximum operating speed via PLL
- 10/100 Base-T Ethernet PHY with RJ45 connector
- 128 KB fast external SRAM
- 256 KB on-chip Flash memory
- 8 KB on-chip SRAM
- Real-time clock support
- I/O connector provides 32 general-purpose 5 V-tolerant I/O pinouts
- Onboard connector provides I/O bus for external peripheral connections (IRQ,  $\overline{CS}$ , 24 address, 8 data)
- Connection to eZ80Acclaim! development platform via two 56-pin mini-headers
- Small footprint 50 mm x 47.5 mm
- 3.3 V power supply
- Standard operating temperature range: 0 °C to +70 °C

## **eZ80F91 Controller Features**

Features of eZ80F91 Controller includes:

- The eZ80F91 device contains 256 KB of Flash memory and 8 KB of SRAM
- Single-cycle instruction fetch, high-performance, pipelined eZ80<sup>®</sup> CPU core
- 10/100 Mbps Ethernet MAC with 8 KB frame buffer
- Low power features including SLEEP mode, HALT mode, and selective peripheral power-down control
- Two UARTs with independent baud rate generators and support for 9-bit operation
- SPI with independent clock generator
- I<sup>2</sup>C with independent clock generator
- Infrared Data Association (IrDA)-compliant infrared encoder/decoder
- DMA-like eZ80 instructions for efficient block data transfer
- External interface with 4 chip selects, individual wait state generators, and an external WAIT input pin — supports Intel- and Motorola-style buses
- Flexible-priority vectored interrupts (both internal and external) and interrupt controller
- Real-time clock with on-chip 32 kHz oscillator, selectable 50/60 Hz input, and separate V<sub>DD</sub> pin for battery backup
- Four 16-bit Counter/Timers with prescalers and direct input/output drive
- Watchdog Timer
- 32 bits of general-purpose I/O
- JTAG and ZDI debug interfaces
- 144-pin BGA package
- 3.0–3.6 V supply voltage with 5 V tolerant inputs
- Standard operating temperature range: 0 °C to +70 °C

## Block Diagram

Figure 1 displays a block diagram of the eZ80F91 Mini Enet Module.

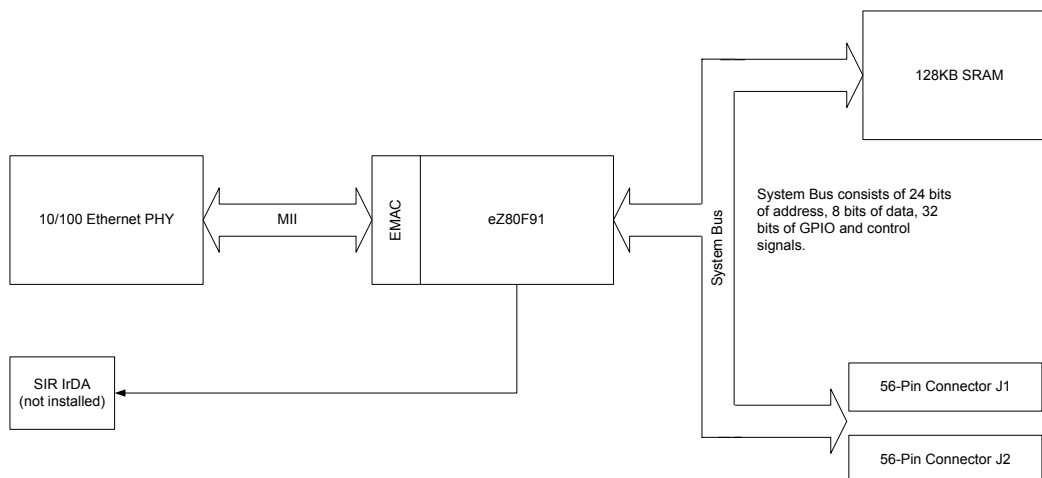


Figure 1. eZ80F91 Mini Enet Module Functional Block Diagram

# Pin Description

## Mini Module Connector J1 – Peripheral Bus

Figure 2 illustrates the pin layout of the 56-pin Peripheral Bus Connector (J1) of the eZ80F91 Mini Enet Module. The eZ80F91 Mini Enet Module is designed to connect to your applications via connectors J1 and J2, where the entire system bus and I/O port signals are available. The module is also compatible with Zilog's eZ80F91 Modular Development System (eZ80F910100KIT). Table 1 on page 5 lists the pins and their functions.

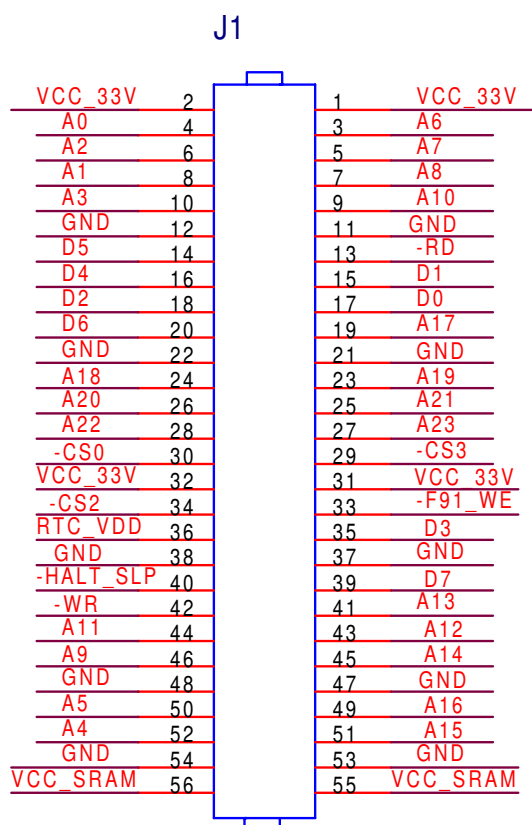


Figure 2. eZ80F91 Mini Enet Module Peripheral Bus Mini Connector Pin Configuration—J1



► **Note:** All signals with an overline are active Low. For example,  $\overline{B/W}$ , for which *WORD* is active Low, and  $\overline{B/W}$ , for which *BYTE* is active Low.

**Table 1. eZ80Acclaim! Development Platform Peripheral Bus Connector J1 Identification**<sup>1,2</sup>

| Pin No | Symbol          | Signal Direction | Active Level | eZ80F91 Signal | Comments |
|--------|-----------------|------------------|--------------|----------------|----------|
| 3      | A6              | Bidirectional    | n/a          | Yes            |          |
| 4      | A0              | Bidirectional    | n/a          | Yes            |          |
| 5      | A7              | Bidirectional    | n/a          | Yes            |          |
| 6      | A2              | Bidirectional    | n/a          | Yes            |          |
| 7      | A8              | Bidirectional    | n/a          | Yes            |          |
| 8      | A1              | Bidirectional    | n/a          | Yes            |          |
| 9      | A102            | Bidirectional    | n/a          | Yes            |          |
| 10     | A3              | Bidirectional    | n/a          | Yes            |          |
| 13     | $\overline{RD}$ | Output           | Low          | Yes            |          |
| 14     | D5              | Bidirectional    | n/a          | Yes            |          |
| 15     | D1              | Bidirectional    | n/a          | Yes            |          |
| 16     | D4              | Bidirectional    | n/a          | Yes            |          |
| 17     | D0              | Bidirectional    | n/a          | Yes            |          |
| 18     | D2              | Bidirectional    | n/a          | Yes            |          |
| 19     | A17             | Bidirectional    | n/a          | Yes            |          |
| 20     | D6              | Bidirectional    | n/a          | Yes            |          |
| 23     | A19             | Bidirectional    | n/a          | Yes            |          |
| 24     | A18             | Bidirectional    | n/a          | Yes            |          |
| 25     | A21             | Bidirectional    | n/a          | Yes            |          |
| 26     | A20             | Bidirectional    | n/a          | Yes            |          |

**Notes**

1. For the sake of simplicity in describing the interface, Power and Ground nets are omitted from this table. The entire interface is represented in the eZ80F91 Mini Enet Module schematics [on pages 16 through 17](#).
2. Additional note: external capacitive loads on  $\overline{RD}$ ,  $\overline{WR}$ ,  $\overline{IORQ}$ ,  $\overline{MREQ}$ , D0–D7 and A0–A23 should be below 10 pF to satisfy the timing requirements for the eZ80 CPU. All unused inputs should be pulled to either  $V_{DD}$  or GND, depending on their inactive levels to reduce power consumption and to reduce noise sensitivity. To prevent EMI, the EZ80CLK output can be deactivated via software in the eZ80F91's Peripheral Power-Down Register.

**Table 1. eZ80Acclaim! Development Platform Peripheral Bus Connector J1 Identification<sup>1,2</sup>**  
(Continued)

| Pin No | Symbol                        | Signal Direction | Active Level | eZ80F91 Signal | Comments        |
|--------|-------------------------------|------------------|--------------|----------------|-----------------|
| 27     | A23                           | Bidirectional    | n/a          | Yes            |                 |
| 28     | $\overline{\text{CS0}}$       | Output           | Low          | Yes            |                 |
| 29     | $\overline{\text{CS3}}$       | Output           | Low          | Yes            |                 |
| 33     | $\overline{\text{F91\_WE}}$   | Input            | Low          | No             | Jumper on board |
| 34     | $\overline{\text{CS0}}$       | Output           | Low          | Yes            |                 |
| 35     | D3                            | Bidirectional    | n/a          | Yes            |                 |
| 36     | RTC_V <sub>DD</sub>           | Input            | n/a          | Yes            |                 |
| 39     | D7                            | Bidirectional    | n/a          | Yes            |                 |
| 40     | $\overline{\text{HALT\_SLP}}$ | Output           | Low          | Yes            |                 |
| 41     | A13                           | Bidirectional    | n/a          | Yes            |                 |
| 42     | $\overline{\text{WR}}$        | Output           | Low          | Yes            |                 |
| 43     | A12                           | Bidirectional    | n/a          | Yes            |                 |
| 44     | A11                           | Bidirectional    | n/a          | Yes            |                 |
| 45     | A14                           | Bidirectional    | n/a          | Yes            |                 |
| 46     | A9                            | Bidirectional    | n/a          | Yes            |                 |
| 49     | A16                           | Bidirectional    | n/a          | Yes            |                 |
| 50     | A5                            | Bidirectional    | n/a          | Yes            |                 |
| 51     | A15                           | Bidirectional    | n/a          | Yes            |                 |
| 52     | A4                            | Bidirectional    | n/a          | Yes            |                 |

**Notes**

- For the sake of simplicity in describing the interface, Power and Ground nets are omitted from this table. The entire interface is represented in the eZ80F91 Mini Enet Module schematics [on pages 16 through 17](#).
- Additional note: external capacitive loads on  $\overline{\text{RD}}$ ,  $\overline{\text{WR}}$ ,  $\overline{\text{IORQ}}$ ,  $\overline{\text{MREQ}}$ , D0–D7 and A0–A23 should be below 10 pF to satisfy the timing requirements for the eZ80 CPU. All unused inputs should be pulled to either V<sub>DD</sub> or GND, depending on their inactive levels to reduce power consumption and to reduce noise sensitivity. To prevent EMI, the EZ80CLK output can be deactivated via software in the eZ80F91's Peripheral Power-Down Register.

## Mini Module Connector J2 – I/O Ports

Figure 3 illustrates the pin layout of the 56-pin I/O Connector (J2) of the eZ80F91 Mini Enet Module. The eZ80F91 Mini Enet Module is designed to connect to your applications via connectors J1 and J2, where the entire system bus and I/O port signals are available. The module is also compatible with Zilog's eZ80F91 Modular Development System (eZ80F910100KIT). Table 2 on page 8 lists the pins and their functions.

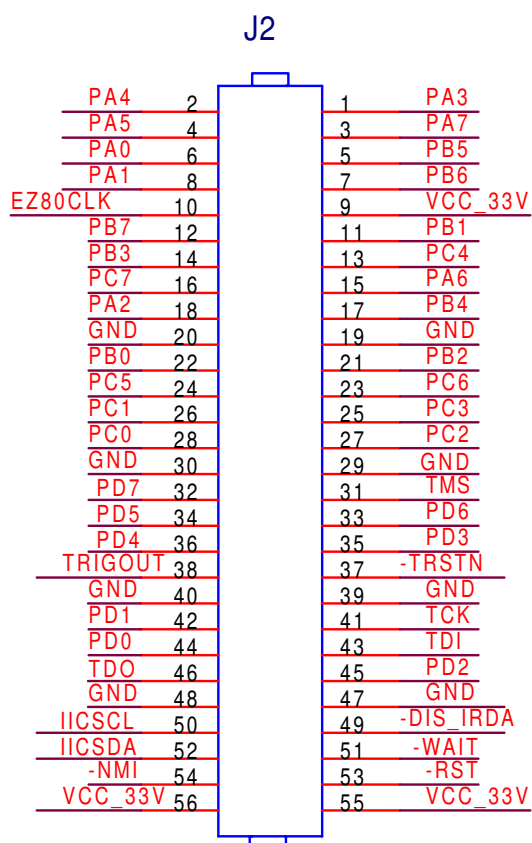


Figure 3. eZ80F91 Mini Enet Module I/O Mini Module Connector Pin Configuration—J2

**Table 2. eZ80Acclaim! Development Platform/O Mini-Module Connector J2 Identification<sup>1</sup>**

| Pin No | Symbol  | Signal Direction | Active Level | eZ80F91 Signal <sup>2</sup> |
|--------|---------|------------------|--------------|-----------------------------|
| 1      | PA3     | Bidirectional    | n/a          | Yes                         |
| 2      | PA4     | Bidirectional    | n/a          | Yes                         |
| 3      | PA7     | Bidirectional    | n/a          | Yes                         |
| 4      | PA5     | Bidirectional    | n/a          | Yes                         |
| 5      | PB5     | Bidirectional    | n/a          | Yes                         |
| 6      | PA0     | Bidirectional    | n/a          | Yes                         |
| 7      | PB6     | Bidirectional    | n/a          | Yes                         |
| 8      | PA1     | Bidirectional    | n/a          | Yes                         |
| 10     | EZ80CLK | Output           | n/a          | Yes                         |
| 11     | PB1     | Bidirectional    | n/a          | Yes                         |
| 12     | PB7     | Bidirectional    | n/a          | Yes                         |
| 13     | PC4     | Bidirectional    | n/a          | Yes                         |
| 14     | PB3     | Bidirectional    | n/a          | Yes                         |
| 15     | PA6     | Bidirectional    | n/a          | Yes                         |
| 16     | PC7     | Bidirectional    | n/a          | Yes                         |
| 17     | PB4     | Bidirectional    | n/a          | Yes                         |
| 18     | PA2     | Bidirectional    | n/a          | Yes                         |
| 21     | PB3     | Bidirectional    | n/a          | Yes                         |
| 22     | PB0     | Bidirectional    | n/a          | Yes                         |
| 23     | PC6     | Bidirectional    | n/a          | Yes                         |
| 24     | PC5     | Bidirectional    | n/a          | Yes                         |
| 25     | PC3     | Bidirectional    | n/a          | Yes                         |
| 26     | PC1     | Bidirectional    | n/a          | Yes                         |
| 27     | PC2     | Bidirectional    | n/a          | Yes                         |
| 28     | PC0     | Bidirectional    | n/a          | Yes                         |

**Notes**

1. For the sake of simplicity in describing the interface, Power and Ground nets are omitted from this table. The entire interface is represented in the eZ80F91 Mini Enet Module schematics [on pages 16 through 17](#).
2. The Power and Ground nets are connected directly to the eZ80F91 device.

**Table 2. eZ80Acclaim! Development Platform/O Mini-Module Connector J2 Identification<sup>1</sup>  
(Continued)**

| Pin No | Symbol                        | Signal Direction | Active Level | eZ80F91 Signal <sup>2</sup> |
|--------|-------------------------------|------------------|--------------|-----------------------------|
| 31     | TMS                           | Input            | n/a          | Yes                         |
| 32     | PD7                           | Bidirectional    | n/a          | Yes                         |
| 33     | PD6                           | Bidirectional    | n/a          | Yes                         |
| 34     | PD5                           | Bidirectional    | n/a          | Yes                         |
| 35     | PD3                           | Bidirectional    | n/a          | Yes                         |
| 36     | PD4                           | Bidirectional    | n/a          | Yes                         |
| 37     | $\overline{\text{TRSTN}}$     | Input            | Low          | Yes                         |
| 38     | TRIGOUT                       | Output           | n/a          | Yes                         |
| 41     | TCK                           | Input            | n/a          | Yes                         |
| 42     | PD1                           | Bidirectional    | n/a          | Yes                         |
| 43     | TDI                           | Bidirectional    | n/a          | Yes                         |
| 44     | PD0                           | Bidirectional    | n/a          | Yes                         |
| 45     | PD2                           | Bidirectional    | n/a          | Yes                         |
| 46     | TDO                           | Output           | n/a          | Yes                         |
| 49     | $\overline{\text{DIS\_IRDA}}$ | Input            | Low          | No                          |
| 50     | IIC_SCL                       | I/O              | n/a          | Yes                         |
| 51     | $\overline{\text{WAIT}}$      | Input            | Low          | Yes                         |
| 52     | IIC_SDA                       | I/O              | n/a          | Yes                         |
| 53     | $\overline{\text{RST}}$       | I/O              | Low          | Yes                         |
| 54     | $\overline{\text{NMI}}$       | Input            | Low          | Yes                         |

**Notes**

1. For the sake of simplicity in describing the interface, Power and Ground nets are omitted from this table. The entire interface is represented in the eZ80F91 Mini Enet Module schematics [on pages 16 through 17](#).
2. The Power and Ground nets are connected directly to the eZ80F91 device.

# Onboard Component Description

## I/O Connector

The I/O connector features 32 general-purpose 3.3 V CMOS I/O pins that can be used as outputs or inputs interfacing to external logic. All I/Os are 5 V tolerant. Some of the general-purpose I/O pins support dual mode functions (SPI, Timer I/O, UARTs and bit I/O with edge- or level-triggered interrupt functions on each pin). For more information on eZ80F91 dual modes, refer to *eZ80F91 Product Specification (PS0192)*.

## Peripheral Bus Connector

The peripheral bus connector features 24-pins that provide access to the eZ80F91 Mini Enet Module address bus and 8-pins that provide access to the module data bus. For more information on eZ80F91 address and data buses, refer to *eZ80F91 Product Specification (PS0192)*.

## Ethernet PHY and RJ45 Connector

The eZ80F92 Ethernet Module contains a Micrel KS8721BL 10/100 Ethernet PHY with Media Independent Interface (MII) and a HALO RJ45 with integrated magnetics and two LEDs (transformer and common-mode chokes).

The eZ80F92 Ethernet Module defaults to 10 Mbps, which works in either a 100 Mbps or a 10 Mbps network. Software can also configure the PHY for 100 Mbps or autosense.

### Ethernet LEDs

The Ethernet connection is provided by the HALO RJ45 connector. It contains two green LEDs that are located next to each other on the eZ80F91 Mini Enet Module. When PHY is receiving data, the left LED is on. When the PHY is transmitting data, the right LED is on.

## 5 MHz Clock

The eZ80F91 Mini Enet Module contains a 5 MHz crystal oscillator (Y2) which is multiplied by the phase-locked loop in the eZ80F91 MCU to create a 50 MHz system clock

## Memory

The eZ80F91 MCU contains 256 KB of internal Flash memory. Additional memory can be accommodated via the system bus on connectors J1 and J2. To program the on-chip Flash memory, install jumper JP1 on the mini module. [Table 3](#) lists the status of the jumper.

**Table 3. Shunt JP1, eZ80F91 Mini Enet Module**

| Symbol | Jumper Name | Shunt Status | Function                                            | Affected Device |
|--------|-------------|--------------|-----------------------------------------------------|-----------------|
| JP1    | F91_WE      | In (Default) | On-chip Flash is enabled for writing to boot block. | On-chip Flash   |
|        |             | Out          | On-chip Flash memory boot block is write-protected. | On-chip Flash   |

There is 128 KB of fast SRAM on the eZ80F91 Mini Enet Module. Access time is 12 ns, which requires one wait-state access. The eZ80F91 on-chip SRAM can be used with zero wait states.

## IrDA Transceiver

The eZ80F91 Mini Enet Module is shipped without an IrDA transceiver installed.

If you install an on-board transceiver, such as the Zilog ZHX1810, it is connected to PD0 (TX), PD1 (RX), and PD2 (Shutdown, IR\_SD). The IrDA transceiver is of the LED type 870 nm Class 1.

The IrDA transceiver is accessible via the IrDA controller attached to UART0 on the eZ80F91 device.

To use the UART0 for console or to save power, the transceiver is disabled by the software or by an off-board signal when using the proper jumper selection. The transceiver is disabled by setting PD2 (IR\_SD) High or by pulling the DIS\_IRDA pin on the I/O connector Low. The shutdown is used for power savings. To enable the IrDA transceiver, DIS\_IRDA is left floating and PD2 is set to Low.

## Serial Interface Ports

The eZ80F91 MCU contains two UARTs with programmable baud rate generators. UART0 is connected to GPIO PD[0:7] on the I/O connector. UART1 is connected to GPIO PC[0:7] on the I/O connector.

► **Note:** *Do not connect an RS232 interface without level shifters. There are no RS232-level shifters on the eZ80F91 Mini Enet Module.*

## Physical Dimensions

The footprint of the eZ80F91 Mini Enet Module PCB is 2.00 " x 1.90 ". See [Figure 4](#) for dimensions and top-layer silkscreen.

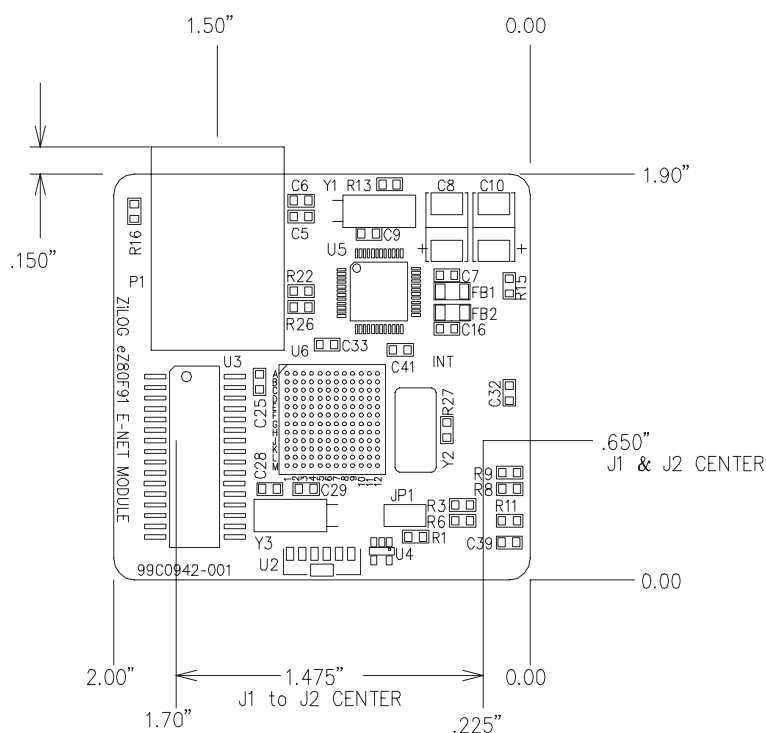


Figure 4. Physical Dimensions of the eZ80F91 Mini Enet Module



## Absolute Maximum Ratings

The stress greater than those listed in [Table 4](#) can cause permanent damage to the device. These ratings are stress ratings only. Operation of the device at any condition outside those indicated in the operational sections of these specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability. For improved reliability, unused inputs should be tied to one of the supply voltages ( $V_{DD}$  or  $V_{SS}$ ).

**Table 4. Absolute Maximum Ratings**

| Parameter                      | Minimum | Maximum | Units |
|--------------------------------|---------|---------|-------|
| Standard operating temperature | 0       | +70     | °C    |
| Storage temperature            | −45     | +85     | °C    |
| Operating Humidity (RH @ 50°C) | 25%     | 90%     |       |
| Operating Voltage              | —       | 3.6     | V     |

## Module Bill of Materials

Table 5 lists the installed components of the eZ80F91 Mini Enet Module.

**Table 5. Bill of Materials for the eZ80F91 Mini Enet Module,**

| ITEM | PART NUMBER | DESCRIPTION                                                      | QTY | LOCATION                           |
|------|-------------|------------------------------------------------------------------|-----|------------------------------------|
| 1    | 98C0942-001 | FAB,eZ80F91 ETHERNET MODULE, REV B<br>Coastal Circuits           | 1   |                                    |
| 2    | 35-0016-06  | IC,74LVC3G04,3.3V,GATE,8-SSOP<br>TEXAS INSTR SN74LVC3G04DCTR     | 1   | U1                                 |
| 3    | 35-0179-12  | IC,SRAM,128Kx8,12ns,3V,32-SOJ<br>IDT IDT71V124SA12Y              | 1   | U3                                 |
| 4    | 35-0062-03  | IC,74AHC1G32,SNGL QUAD OR,SOR23-5<br>TEXAS INSTR SN74AHC1G32DBVR | 1   | U4                                 |
| 5    | 35-0022-02  | IC,KS8721BL,PHY XCVR,48-LQFP<br>MICREL SEMI KS8721BL             | 1   | U5                                 |
| 6    | EZ80F91     | IC,eZ80F91,50MHZ,144BGA<br>ZiLOG EZ80F91NA050SC                  | 1   | U6                                 |
| 7    | 17-2005-83  | CAP,0.33UF,16V,CER CHIP,0603<br>PANASONIC ECJ-1VF1C334Z          | 1   | C1                                 |
| 8    | 17-2005-70  | CAP,1,000PF,50V,CER CHIP,0603<br>PANASONIC ECJ-1VC1H561J         | 11  | C2,C18,C25-33                      |
| 9    | 17-2005-66  | CAP,0.1UF,16V,CER CHIP,0603<br>KEMET C0603C104K5RAC              | 14  | C3,C7,C9,C13-17,<br>C21,C24,C38-41 |
| 10   | 17-2001-05  | CAP,22PF,50V,CER CHIP,0603<br>PANASONIC ECJ-1VC1H220J            | 4   | C5,C6,C51,C52                      |
| 11   | 17-0018-20  | CAP,10UF,25V,TANT CHIP,SMT<br>PANASONIC ECSH1ED106R              | 2   | C8,C10                             |
| 12   | 17-2005-63  | CAP,0.056UF,50V,CER CHIP,0603<br>PANASONIC ECJ-1VB1C563K         | 1   | C11                                |
| 13   | 17-2001-20  | CAP,270PF,50V,CER CHIP,0603<br>PANASONIC ECJ-1VC1H271J           | 1   | C12                                |
| 14   | 17-0018-47  | CAP,47UF,16,TANT CHIP,SMT<br>PANASONIC ECS-T1CD476R              | 2   | C19,C20                            |
| 15   | 17-2001-04  | CAP,18PF,50V,CER CHIP,0603<br>PANASONIC ECJ-1VC1H180J            | 2   | C22,C23                            |
| 16   | 17-9009-10  | FERRITE BEAD,3AMP,100 OHM,1206 SMT<br>STEWART HI1206N101R-00     | 2   | FB1,FB2                            |
| 17   | 46-3001-03  | RES,10K OHM,1%,1/16W,0603 SMT                                    | 6   | R1,R7-9,R11,R12                    |
| 18   | 46-3000-79  | RES,4.75K OHM,1%,1/16W,0603 SMT                                  | 3   | R2,R3,R26                          |
| 19   | 46-3000-35  | RES,68 OHM,1%,1/16W,0603 SMT                                     | 1   | R4                                 |
| 20   | 46-3000-02  | RES,2.2 OHM,1%,1/16W,0603 SMT                                    | 1   | R5                                 |
| 21   | 46-3000-71  | RES,2.21K OHM,1%,1/16W,0603 SMT                                  | 1   | R6                                 |
| 22   | 46-3000-83  | RES,6.81K OHM,1%,1/16W,0603 SMT                                  | 1   | R13                                |
| 23   | 46-3000-63  | RES,1K OHM,1%,1/16W,0603 SMT                                     | 2   | R15,R16                            |
| 24   | 46-3000-56  | RES,499 OHM,1%,1/16W,0603 SMT                                    | 1   | R18                                |
| 25   | 46-3000-27  | RES,33.2 OHM,1%,1/16W,0603 SMT                                   | 1   | R19                                |
| 26   | 46-3000-32  | RES,49.9 OHM,1%,1/16W,0603 SMT                                   | 4   | R20,R21,R22,R25                    |
| 27   | 46-3000-47  | RES,221 OHM,1%,1/16W,0603 SMT                                    | 2   | R23,R24                            |
| 28   | 46-3001-27  | RES,100K OHM,1%,1/16W,0603 SMT                                   | 1   | R27                                |
| 29   | 23-0006-25  | XTAL,25.0000MHZ,18PF,CYL<br>EPSON CA-301 25.0000M-C              | 1   | Y1                                 |

Table 5. Bill of Materials for the eZ80F91 Mini Enet Module (Continued)

| ITEM | PART NUMBER | DESCRIPTION                                                             | QTY | LOCATION |
|------|-------------|-------------------------------------------------------------------------|-----|----------|
| 30   | 23-0000-05  | XTAL, 5.0000MHZ, SER/RESN, HC49US<br>CITIZEN HC49US5.000MABJ            | 1   | Y2       |
| 31   | 23-0006-00  | XTAL, 32.768KHZ, SER/RESN, TF CASE<br>FOX NC38-32.768KHZ OR ECS ECS-3X8 | 1   | Y3       |
| 32   | 21-8010-56  | CONN, 56-CKT, .8mm, HDR/PIN<br>SAMTEC FTE-128-01-G-DV-A                 | 2   | J1, J2   |
| 33   | 21-0055-01  | CONN, HDR/PIN, .025SQ, SNGL ROW<br>HARWIN M-20-977-3622                 | 0.1 | JP1      |
| 34   | 21-0907-01  | CONN, RJ45, FASTJACK, 10/100BASE-T<br>HALO ELECTRONICS HFJ11-2450E-L11  | 1   | P1       |
| 35   | 21-0192-00  | SHUNT, 2-POS, .1 CNTR, LOW PRFL<br>AMP 382811-5                         | 1   | JP1      |

# Schematics

Figures 5 and 6 describe the layout of the eZ80F91 Mini Enet Module. Ethernet circuiting devices are not loaded on the eZ80F91 Mini Enet Module. However, these devices appear in the following schematics for reference purposes.

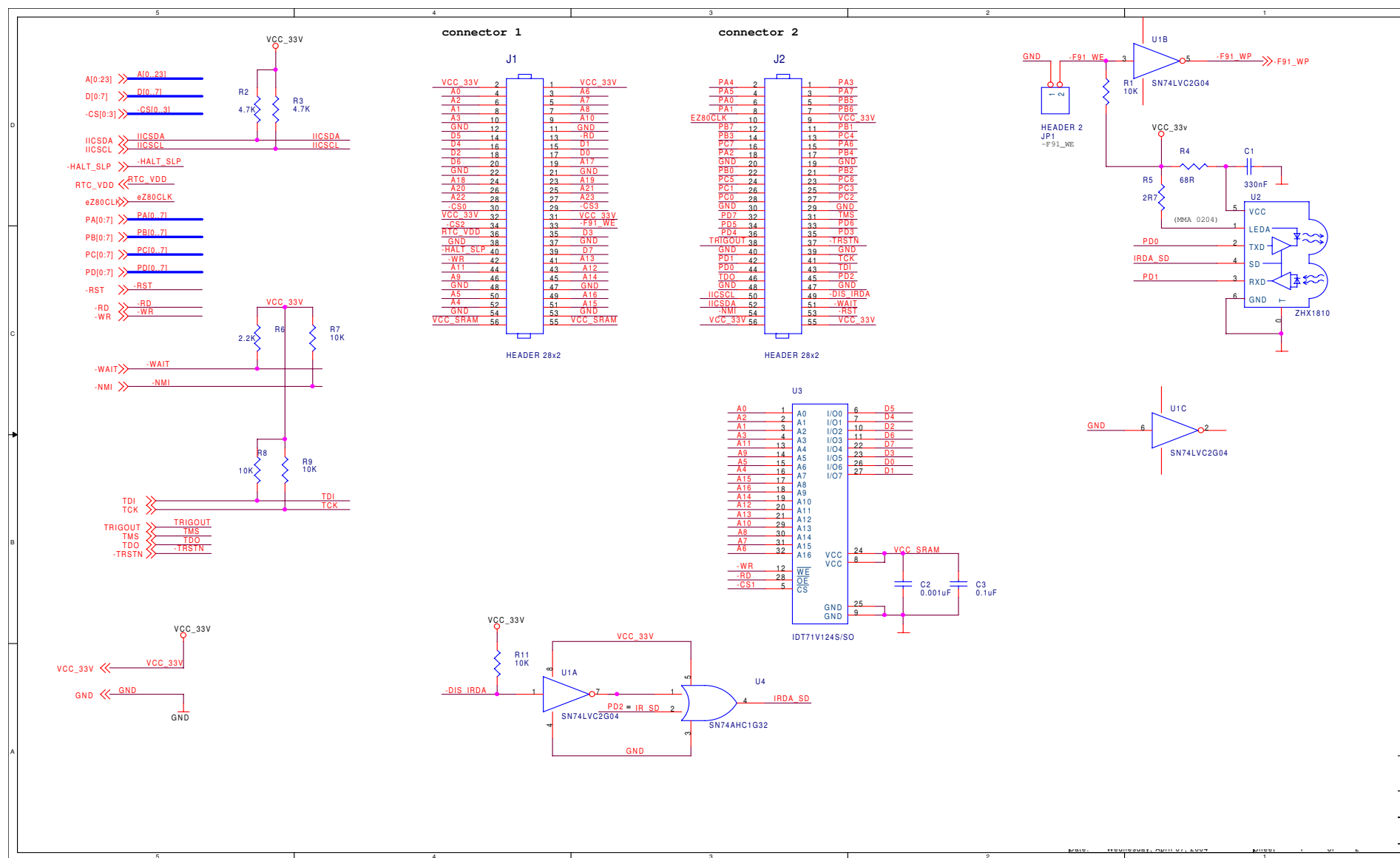


Figure 5. eZ80F91 Mini Enet Module Schematic Diagram, #1 of 2—Connectors and Miscellaneous

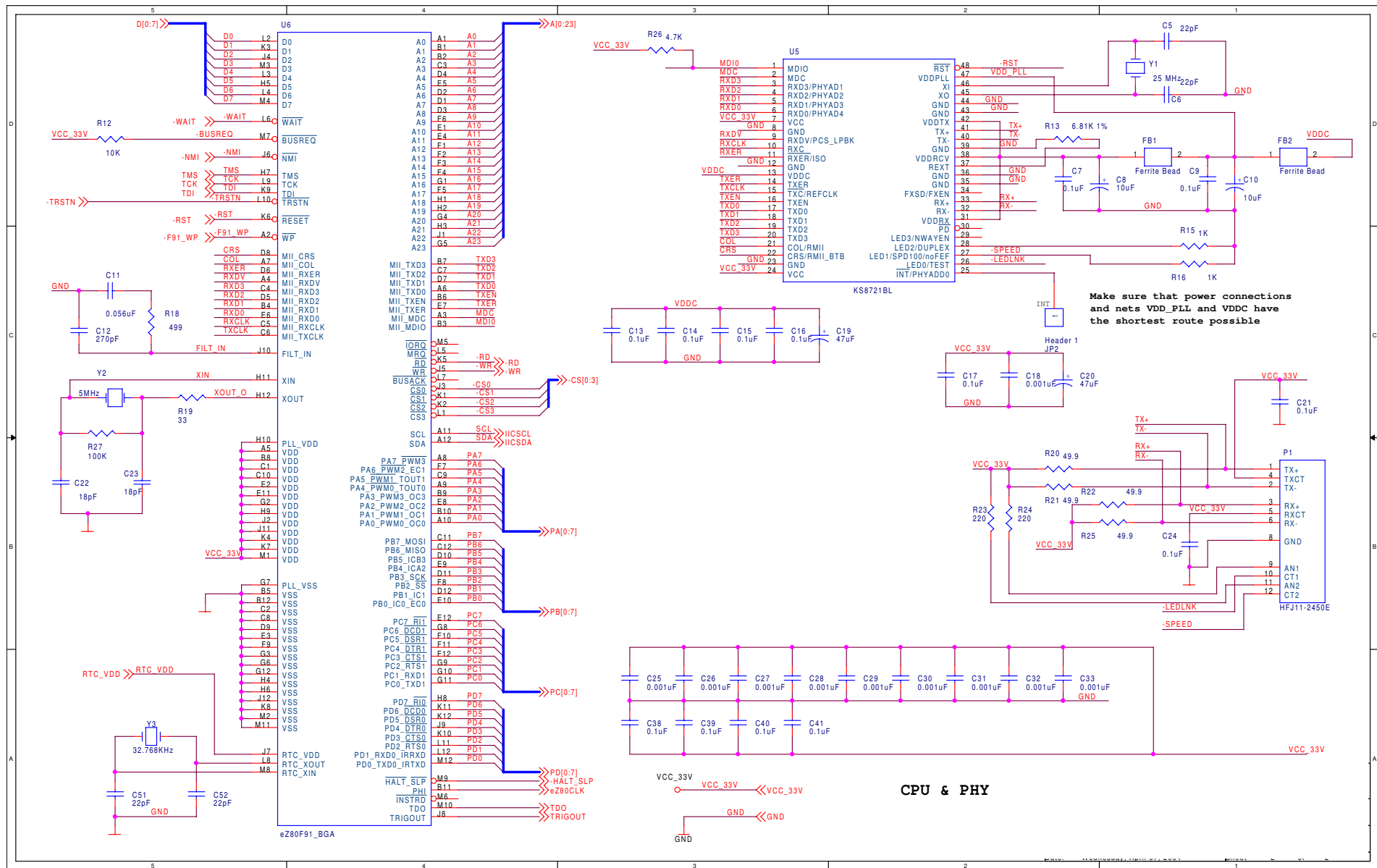


Figure 6.eZ80F91 Mini Enet Module Schematic Diagram, #2 of 2—CPU and PHY

## Customer Support

For answers to technical questions about the product, documentation, or any other issues with Zilog's offerings, please visit Zilog's Knowledge Base at <http://www.zilog.com/kb>.

For any comments, detail technical questions, or reporting problems, please visit Zilog's Technical Support at <http://support.zilog.com>.

Компания «Океан Электроники» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Поставка оригинальных импортных электронных компонентов напрямую с производств Америки, Европы и Азии, а так же с крупнейших складов мира;
- Широкая линейка поставок активных и пассивных импортных электронных компонентов (более 30 млн. наименований);
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Компания «Океан Электроники» является официальным дистрибьютором и эксклюзивным представителем в России одного из крупнейших производителей разъемов военного и аэрокосмического назначения «JONHON», а так же официальным дистрибьютором и эксклюзивным представителем в России производителя высокотехнологичных и надежных решений для передачи СВЧ сигналов «FORSTAR».



## JONHON

«JONHON» (основан в 1970 г.)

Разъемы специального, военного и аэрокосмического назначения:

(Применяются в военной, авиационной, аэрокосмической, морской, железнодорожной, горно- и нефтедобывающей отраслях промышленности)

«FORSTAR» (основан в 1998 г.)

ВЧ соединители, коаксиальные кабели,  
кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).



Телефон: 8 (812) 309-75-97 (многоканальный)

Факс: 8 (812) 320-03-32

Электронная почта: [ocean@oceanchips.ru](mailto:ocean@oceanchips.ru)

Web: <http://oceanchips.ru/>

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, д. 2, корп. 4, лит. А