

# EmCORE-i413



ZF86 FailSafe™  
Embedded PC-on-a-Chip



Dual LAN  
10/100



16-bit  
Digital I/O



CRT SVGA  
LynxEM4+



Flat Panel  
LynxEM4+



## ZF86 586 FailSafe™

## LCD/CRT SVGA, 10/100 Mbps Fast Ethernet and Digital I/O

### General Specifications

#### Embedded CPU + Chipset

ZF86 Failsafe 586 32-bit CPU core operating at 133, 100, 66 and 33 MHz with 32-bit 33MHz PCI rev 2.1 compliant "Northbridge" and "Southbridge"

FailSafe internal Boot ROM that allows execution of multiple instruction sets: DRAM clear, Flash erase, executable load and run, Provides permanent and fail-safe mechanism

#### External BIOS

Phoenix Embedded PC BIOS with RS-232 console redirection for headless BIOS access

#### DRAM Memory

32 MB SDRAM onboard

#### Bus Interfaces

ISA bus - 8.3 MHz (PC/104)

PCI 32 bit 33MHz rev. 2.1 compliant (internal)

#### Enhanced IDE

supports one port and up to two ATAPI devices with Ultra DMA (ATA-4) support 44-pin IDE connector for 2.5" (laptop-size) HDD/Flash IDE drive including power

#### Watchdog Timer

Embedded application Dual Watchdog Timer (WDT) with SW and HW control of the WDT event 16 bit counter primary watchdog connected to SW IRQ/NMI/SMI reset by Watch Dog Timer Input (WDI). Second 8 bit counter output connected to H/W reset line enabled by primary counter output

#### Real-time Clock

Built-in chipset with lithium battery backup for 10 years of data retention.

#### Digital I/O

16-bit GPIO, 8 independent GPI and 8 independent GPO programmable by software.

### Network Controller

#### Chipset

Realtek 8139C, 10/100 Mbps, autoswitching

#### Connector

10-pin onboard header

### High Speed Multi I/O

#### Serial Ports

one high speed RS-232C ports (COM1) and one jumper selectable RS-232C/422/485 (COM2). Both with 16C550 compatible UART and 16 byte FIFO

#### USB

2 onboard USB v1.1 ports and OpenHCL compliant (2x 5-pin header)

#### Floppy Disk Drive Interface

supports one 3½" floppy disk drive

#### Bidirectional Parallel Port

supports SPP, EPP and ECP mode. BIOS enabled/disabled

#### Keyboard and Mouse Connectors

onboard 10-pin mini header for AT Keyboard and PS2 Mouse

### Flash Disk DiskOnChip® 2000

#### Package

Single Chip Flash Disk in 32-pin DIP JEDEC

### VGA Interface

#### Chipset

SMI SM712G4AA LynxEM4  
33 MHz PCI bus with 4 MB memory on die

#### Display Type

CRT, TFT, DSTN, SSTN, EL, Plasma Quarter VGA, VGA, SVGA, XGA and SXGA

### Environmental and Power

#### Power Requirements

based on 32 MB DRAM and 8 MB Flash disk

33 Mhz -> 5 V @ 0.8 A

66 Mhz -> 5 V @ 0.8 A

100 Mhz -> 5 V @ 0.9 A (default)

133 Mhz -> 5 V @ 1.1 A (over-clocked)

#### Board Dimensions

90 x 96 mm.

#### Board Weight

0.10 Kg

#### Operating Temperature

0 to 60°C (32 to 140°F)

### OS Compatibility

Linux, DOS, VxWorks, many RTOS, Windows CE, Windows 9x, and Windows NT

### Ordering

**EmCORE-i413DVL:** PC/104 ZF86 Module with onboard 32 MB SDRAM, Flat Panel/CRT SVGA, Fast Ethernet, DiskOnChip socket, 16-bit Digital I/O port

### Inside the ZF86 Chip

