



ZF86-Family™ Integrated Development Systems

Features

- Choice of ZF86 -Family SOC
- 10/100Base-T Ethernet
- VGA/XGA/SVGA/SXGA CRT controller
- Peripheral connections (ports and types vary with SOC model)
- Two or more PCI expansion slots
- Two ISA expansion bus slots
- Two USB ports (except on Lite)
- PS/2 keyboard and mouse
- Floppy disk drive (except on -LCD)
- IDE disk drive
- CD ROM disk drive
- OS software and utilities including OS and development tools (some are full distributions and some are evaluations.†)

Network-ready embedded system computers based on our ZF86-Family SOCs

The ZF Integrated Development Systems are network and video-ready, full-function ATX size evaluation systems. The systems are available with your choice of ZF86-Family system-on-a-chip: ZF86, ZF86-Lite, ZF86-TV, or ZF86-LCD. All IDS systems provide a 10/100Base-T Ethernet (PCI) card and display controller (PCI) card to create an evaluation and development environment for OEM designers to test a ZF86 processor type with their own proprietary hardware and software.

Complete Feature Set

The ZF86 Integrated Development Systems incorporate all the functionality of a standard PC motherboard with a number of enhancements and added features. The motherboard inside includes peripheral I/O and device headers, user-available flash, ISA and PCI expansion bus connectors, and an AT-compatible BIOS.

Our IDS systems also include a robust ATX power supply, hard drive (preloaded with Linux OS and other software tools), floppy drive (except on LCD), CD, keyboard, mouse, and cables—all configured to facilitate the development engineer's bring-up task.

Short Time to Market, Fast Design Cycle

Speed Up Your Design Cycle

Easily integrate the widest selection of embedded hardware peripherals by attaching ISA or PCI expansion cards directly to the board via the sockets provided. The PC/AT ROM-BIOS and OS enable you to develop software on your desktop PC and then easily transfer your development work to the embedded system with little or no modification. Or you can develop your application software directly on the ZFx86-Family Integrated Development System.

Just Like a PC-But Powered by ZFx86-Family SOC

The Integrated Development System environment is ideal for evaluating just how a target system based on a ZFx86-Family chip will perform. Designed for engineering flexibility, most standard PC interfaces are built right into the ZFx86-Family chips. Outboard features are implemented via ISA or PCI interface cards using slots provided on the IDS motherboard. Included in the system are a PCI Video board and a PCI Network board. You can use the extra board slots to add additional peripheral adapter cards having the same chips as the intended product, thus characterizing your ZF-based products behavior.

Robust open chassis with three available slots and power to spare



Working with a ZFx86-Family Development System is very similar to working with a standard personal computer-one where the motherboard chipset is the ZF SOC itself. Each IDS has a standard ATX form factor motherboard, so adding standard OEM peripheral cards becomes an easy matter.

Mouse and Keyboard are supplied for a ready-to-run system.

System Power and Cabling

All internal cables are supplied with the Integrated Development System. The chassis power supply handles 220V 50Hz or 117 VAC at 60Hz (factory setting) and ships with a US-style power cable.

Switches and Jumpers

The system ships pre-configured with as many features enabled as possible, configured in a typical PC manner. However, you can access internal switches and jumpers that configure many ZFx86-Family chip and system features, including support for multiple clocking schemes. Complete documentation is provided on CD for easy configuration and reference.

Complete ZFx86-Family Embedded Development

Not Just Silicon– Each ZF SOC Is A Complete Solution

ZFx86 IDS Motherboard Shown Here



*The heart of the system;
ZFx86-Family SOCs run at
.5 to 2.5 Watt (max)
not a typical 8 to 10 Watts*



Inside the IDS Systems

Whichever ZFx86-Family chip you choose to design around, the corresponding IDS supports it completely and helps you get products to market quickly. Designed expressly for embedded applications, all ZFx86-Family chips offer powerful PC motherboard functions plus provide ZF proprietary FailSafe System circuitry (some internally and some externally)– and provide ultra-low power operation.

Designing ZF-powered products allows you to take advantage of the ZFx86-Family's lowest BOM cost in the embedded market. With more functions on the chips, you can focus on peripherals and software.

ZF-Logic present in the ZFx86 chip, and ZF-Logic Lite subset features present in the ZFx86-Lite/TV/LCD chips, give your designers easy access to the rich x86 system architecture.

Developing projects using the IDS system simplifies the whole design process. Software tools included in each IDS help you evaluate which operating system your target product should use.

Programming flash memory where BIOS and application code are stored has never been easier. IDS systems provide interfaces and software for easy flash programming. Some IDS systems even include the powerful Z-tag port and programming tool for on-board programming upgrades at the amazing speed of 2,500,000 bits per second.

Tools to Get You Started Fast

Each Integrated Development System comes complete with bundled third-party system software, BIOS, and utilities. Most software is preloaded on the system's hard disk to ensure ease of development. Full packages of installation CDs from the original manufacturers are included in the event you ever need to reinstall software or look at the materials provided.

In addition to the 3rd-party tools you'll find in the box or installed on the IDS hard drive, the IDS also includes ZF's own tools:

ZF Micro Solutions tools include:

- ◆ Z-tag programming tool
- ◆ Z-tag manager software
- ◆ BIOS customization software (ZEB)
- ◆ Hundreds of downloadable support files including manuals, reference designs, and software tools, all available to ZF customers from the ZF Micro Solutions website (<http://www.zfmicro.com/downloadtable.html>)

Specifications of ZFx86-Family IDS Models

System-On-Chip	ZFx86-Lite	ZFx86	ZFx86-TV	ZFx86-LCD
Processor Core	x86	x86	x86	x86
Installed DRAM (168 pin)	64MB DIMM	64MB DIMM	64MB DIMM	64MB DIMM
USB Open HCI compliant	—	2 Connectors	—	2 Connectors
16-bit ISA Bus Connectors Full set of signals, Complete IRQ set 16&18-bit DMA support	3	2	3	2
32-bit PCI Bus Connectors 32 bit 33MHz Rev 2.1 compliant Burst transfers up to 120MB per second Up to 3 Ext PCI Masters	3	3	3	2
Serial Ports 16550-type RS232C Infrared (IRDA) Port (uses serial port)	2	2	2	2
PCMCIA Socket	—	—	—	1
IDE (ATA-4) Connectors Second IDE master/slave channel available	2	2	2	2
On-board Storage (Flash)	Socket Available	2MB plus Socket	Socket Available	Socket Available
Off-board (Flash)	—	Socket Available	—	—
On-board Storage (Disk- On-Chip/DOC)	Socket Available	Socket Available	Socket Available	Socket Available
ZTAG Port on board	—	Yes	—	—
JTAG Port on board	Yes	Yes	Yes	Yes
Ethernet Controller 10/100 Base-T PCI Card	Yes	Yes	Yes	Yes
VGA 15-pin Video Interface PCI Card	Yes	Yes	Yes	Yes
Floppy Drive	Yes	Yes	Yes	No
PS/2 Keyboard	Yes	Yes	Yes	Yes
PS/2 Mouse	Yes	Yes	Yes	Yes
IDE (ATA-4) Hard Drive	Yes	Yes	Yes	Yes
CD ROM Drive	Yes	Yes	Yes	Yes
ATX Power Supply	Yes	Yes	Yes	Yes
GPIO Connector	16	8	No	16
TV Out	No	No	Yes	No
Video In (analog & digital)	No	No	Yes	Yes
TFT screen interface	No	No	Yes	No

Included Software and Tools

Software

A variety of OS and utilities are included to provide a rich test and development environment. For example, each IDS includes a Linux OS distribution, executable image of the ZFx86 port of Phoenix Rev 4.0 PC BIOS, DOS, various RTOS evaluation packages[†], and a Windows CE Platform Builder Evaluation[†]. Note: supplied software varies among IDS systems and is subject to change depending on availability and version compatibility.

Accessories and Options

- ◆ Z-Tag programming tool (ZFx86 IDS only)
- ◆ Z-Tag manager software
- ◆ Infrared interface option (ZFx86 IDS only)

Ordering Information

Phoenix BIOS run-time license comes with all ZFx86-Family SOCs. All IDS systems include ATX board, case with power supply, hard disk and CD-ROM, cables, S/W images, manuals, reference design and CAD files.

ZFx86BGA388X

(the last character "X" = S, M, or B^{††}) - ZFx86 FailSafe Bootable PC-on-a-Chip. Available in standard and extended temperature ranges.

ZFx86IDS-K-01 - IDS for US.

ZFx86IDS-KE-01 - IDS for export out of US.

ZFx86DONGLE-1 - Download dongle, 256K EEPROM for ZFx86 IDS only.

ZFx86BGA388-TV

(the last character "X" = S, M, or B^{††}) - ZFx86-TV FailSafe Bootable PC-on-a-Chip

ZFx86TVIDS-K-01 - IDS for US.

ZFx86TVIDS-KE-01 - IDS for export out of US.

ZFx86BGA388-LT (Lite)

(the last character "X" = S, M, or B^{††}) - ZFx86-LT FailSafe Bootable PC-on-a-Chip

ZFx86LTIDS-K-01 - IDS for US.

ZFx86LTIDS-KE-01 - IDS for export out of US.

ZFx86BGA516-LC (LCD)

(the last character "X" = S, M, or B^{††}) - ZFx86-LC FailSafe Bootable PC-on-a-Chip

ZFx86LCDIDS-K-01 - IDS for US.

ZFx86LCDIDS-KE-01 - IDS for export out of US.

[†] Customers of ZF Micro Solutions products are responsible for obtaining any additional licenses required to support their specific applications

^{††} Packaging Options: S = single device in jewel box, M = Tray (24 devices), and B = Brick (240 devices).



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