



Z90376 and Z90371

64 KWord TV Dual Scan Controller with Progressive & Standard Interlaced Scan

PB005601-TVC1199

Product Block Diagram

64K Words ROM or OTP		
DSP Core		RAM
ADC		
OSD		
Hardware Cursor		
PWM	I ² C	I/O Ports

General Description

The Z90376 television controller supports both progressive and interlaced scan methods.

The Z90376 provides a highly-integrated solution for TV design. With a high-speed 16-bit Digital Signal Processor (DSP), The Z90376 provides advanced OSD flexibility including hardware cursor, semi-transparency, and programmable color palettes. The Z90376 supports V-Chip, Extended Data System (XDS), and Line 21 closed captioning software. No additional hardware is required. The Z90376 is an ideal choice for high-end TV products for both PAL and NTSC standards.

The Z90376 and Z90371 are the ROM and OTP versions respectively with 64KWords of ROM and programmable memory. Both have 1KWord of RAM.

The Z9037x family consists of three basic devices:

- The Z90376 masked ROM
- The Z90371 One-Time-Programmable device
- The Z90379 In-Circuit Emulation (ICE) chip

In addition, ZiLOG provides a complete development suite for TV product development, which includes emulator, evaluation kit, C-Compiler, Application Programmer Interface (API), ZiLOG Developer Studio (ZDS) software, and font editor. These tools help TV developers work efficiently and effectively with quick time to market.

On-Screen Display Features

- Progressive scan for sharp, clear images without perceptible interline flickering
- Relocatable CGROM for unlimited character sets
- 16x16, 16x18, and 16x20 pixel matrices
- Hardware cursor with 4 colors per pixel and pixel-by-pixel positioning
- Semi-transparent blinking, multi-color icons, italic, bold and underline characters
- Integrated Vertical Blank Interval (VBI) decoding

TV Control Features

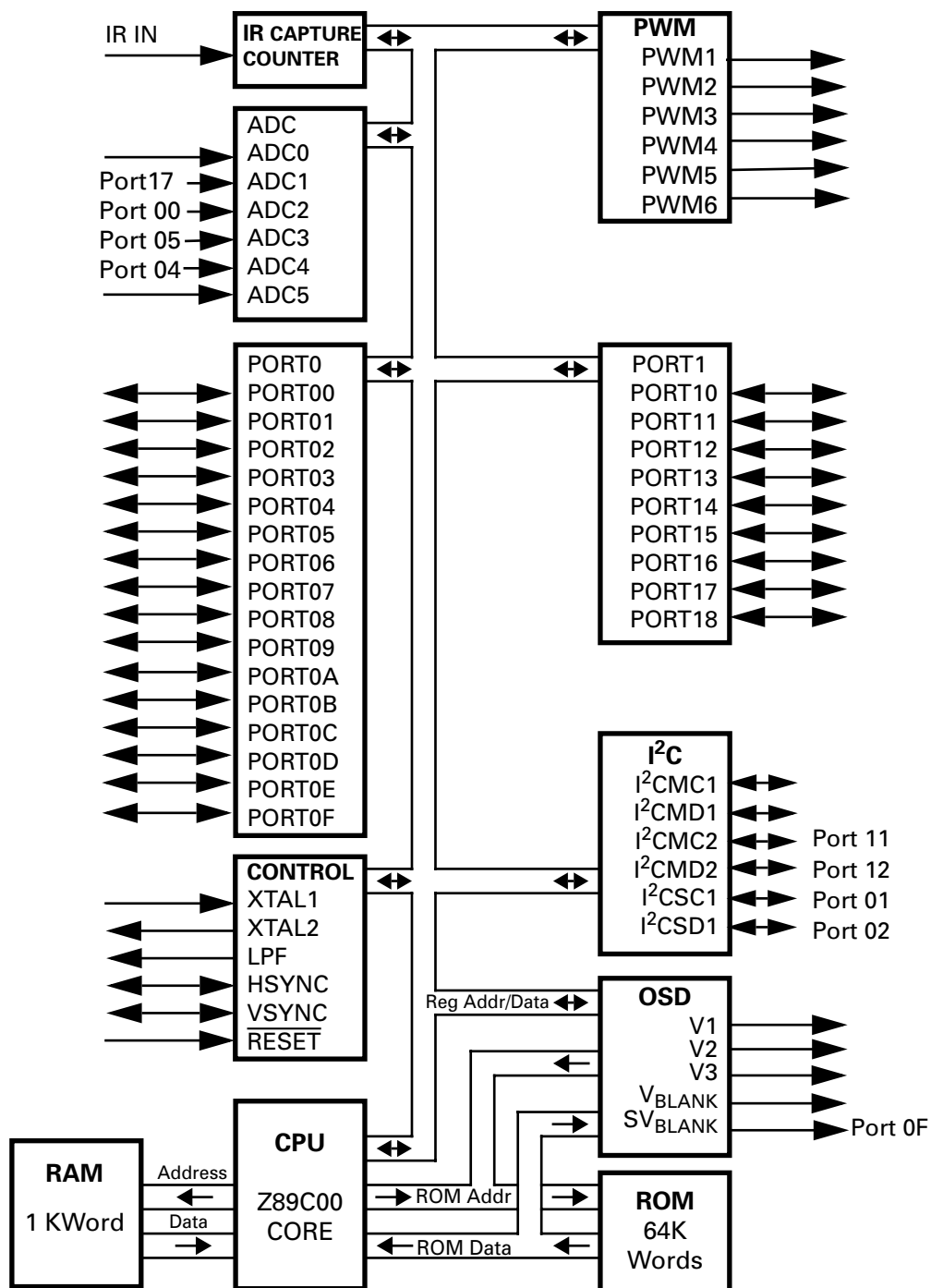
- Six Channel, 4-bit Analog-to-Digital Converter which supports:
 - Automatic frequency tuning
 - Analog keypad entry
 - Audio level input adjustment
 - VBI decoding
- Six Pulse Width Modulators (PWM) to control video, audio, and tuners
- Master/Slave I²C bus interface
- Twenty-five programmable I/Os
- On-chip Infrared (IR) capture register

Controller Features

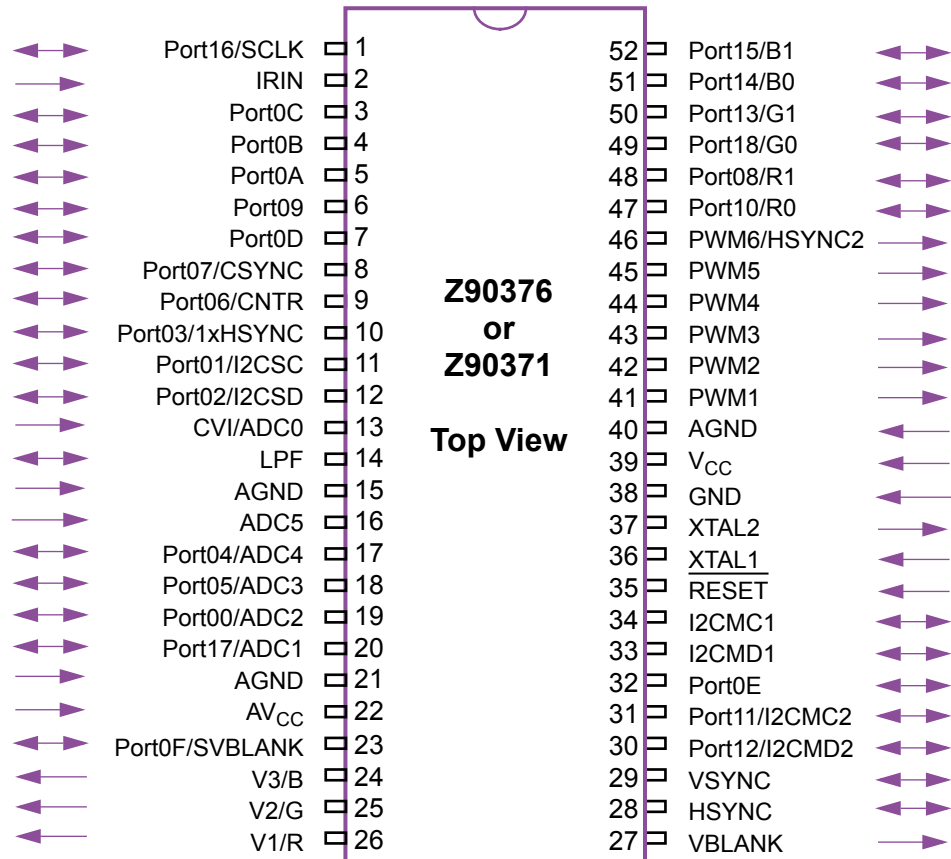
- 16-bit Single-cycle instruction execution
- Phase Lock Loop (PLL), controlled by a 32KHz external crystal
- 64KWord ROM or OTP with re-locatable Character Generation ROM
- 1KWord of RAM
- 52-pin SDIP package



Block Diagram of Z90376 and Z90371



Pin-Outs and Pin Direction



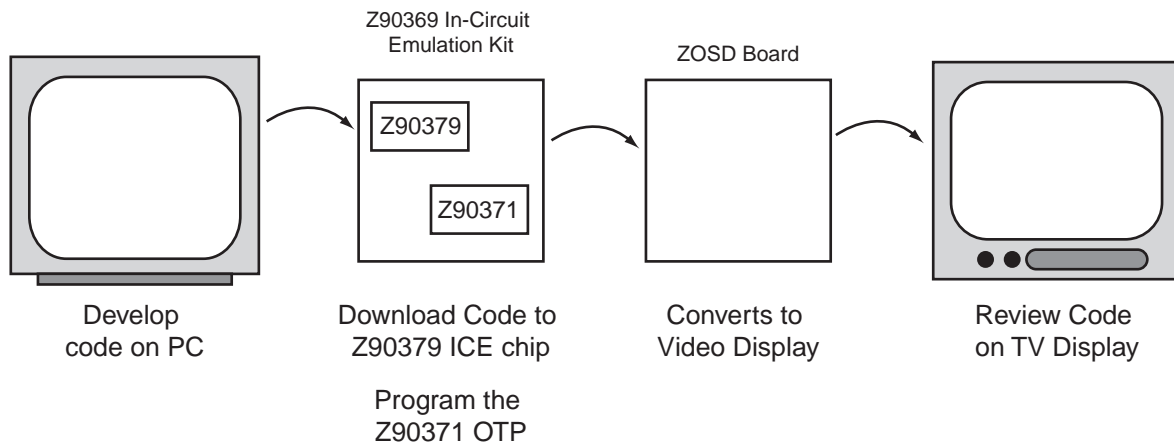
Development Tools & Support

Available in One-Time Programmable (OTP) and MASK ROM Versions, the Z90376 and Z90371 fulfill Prototype and Production Requirements. The Z90376 uses ICEbox™ In-Circuit Emulator tools (Z9036900ZEM) to make Programming and Debugging easy and convenient.

ZiLOG Developer Studio (ZDS) provides easy code generation and program management.

For code development, ZiLOG offers its proven Application Programmer Interface (API) for OSD. API deals directly with proper sequencing and timing when interfacing with hardware, shielding the user application program from tedious and error prone details.

The Z9034600ZCO, an OSD evaluation board (ZOSD), is used to synchronize the emulator with a video display. Refer to the diagram below for a suggested code development environment. ZiLOG also offers the Z9034600TSC Protopak to verify code on a television.



Related Products

Z9037x	Dual Scan TV controller for Progressive Scan
Z9035x	Advanced TV controller with 64 KWords of ROM, Programmable Palette, and Cursor
Z9036x	Advanced TV controller with 32 KWords of ROM
Z86129	Closed Caption Decoder (CCD)
Z86229	Closed Caption Decoder (CCD) with Second I ² C Address Select
Z86131	Auto Time Set
Z86130	Smart V-Chip
Z86230	Smart V-Chip with Second I ² C Address Select



Electrical Features Summary

- 40 mA Maximum Supply Current
- 4.50 V to 5.50 V Operating Range

Z9037X Device Selection

Device	Application	ROM (Words)	RAM (Words)	Pkg	I ² C	IR Capture	ADC	Bit I/O (max)	PWM (8-bit)
Z90376	TV Receiver Controller	64K	1K	52-Pin SDIP	Yes	Yes	6 Ch	25	6
Z90371	TV Receiver Controller	64K OTP	1K	52-Pin SDIP	Yes	Yes	6 Ch	25	6

Ordering Information

Part	PSI	Description
Z90371	Z9037112PSC	OTP TV Controller
Z90376	Z9037612PSC Rxxxx*	Masked ROM TV Controller
Emulation Kit	Z9036900ZEM	Emulator/ Programmer
Protopak	Z9034900TSC	Protopak for code verification
Evaluation Board	Z9034600ZCO	OSD Evaluation Board
* xxxx is a unique ROM number assigned to each customer code		



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