



Z89165/167/169 AND Z89166/168 (ROMLESS)

ENHANCED DUAL-PROCESSOR DTAD CONTROLLERS

FEATURES

Part Number	Z8 ROM (KBytes)	Z8 RAM* (KBytes)	Speed (MHz)
Z89165	24	236	20
Z89166	ROMless	236	20
Z89167	24	236	24
Z89168	ROMless	236	24
Z89169	32	236	24

*General-Purpose

Part Number	DSP ROM (Words)	DSP RAM (Words)	Speed (MHz)
Z89165	6K	512	20
Z89166	6K	512	20
Z89167	8K	512	24
Z89168	8K	512	24
Z89169	8K	512	24

- 68- and 84-Pin PLCC Packages
- 4.5- to 5.5-Volt Operating Range
- Low-Power Consumption (200 mW Typical)
- 0°C to +70°C Temperature Range

- 25 Expanded Register Files
- 47 Input/Output Lines (Z89165)
31 Input/Output Lines (Z89166)
43 Input/Output Lines (Core Processor)
- Six Vectored, Prioritized Z8 Interrupts with Programmable Polarity
- Three Vectored, Prioritized DSP Interrupts with Programmable Polarity
- Two Analog Comparators
- Two Programmable Z8 8-Bit Counter/Timers, Each with Two 6-Bit Programmable Prescaler
- Watch-Dog Timer /Power-On Reset
- On-Chip Oscillator that Accepts a Crystal, Ceramic Resonator, LC, RC, or External Clock Drive
- RAM and ROM Protect, Low-EMI Option

GENERAL DESCRIPTION

Zilog's Digital Voice Processor Controller family combines a Z8[®] microcontroller and a DSP processor on-chip for a cost-effective turnkey system in digital telephone answering devices and other voice processing applications.

The dual-processor architecture is loosely coupled by mailbox registers and an interrupt system, enabling DSP or Z8 programs to be directed by events in each other's domain.

The Z8 microcontroller uses an expanded register file to allow access to register-mapped peripheral and I/O circuits for programming versatility.

The 16-bit DSP processor features a 24-bit ALU and accumulator with single-cycle instructions, providing the algorithm processing power necessary for telephone voice quality.

The Z89165/166 devices offer a half-flash 8-bit A/D converter with up to 128 kHz sample rate and a 10-bit Pulse-Width modulator (PWM) D/A converter, eliminating the need for an external CODEC.

The Z89167/168/169 devices feature a hardware ARAM interface, as well as a dual-CODEC interface. A 10-bit PWM D/A converter is also on-chip.

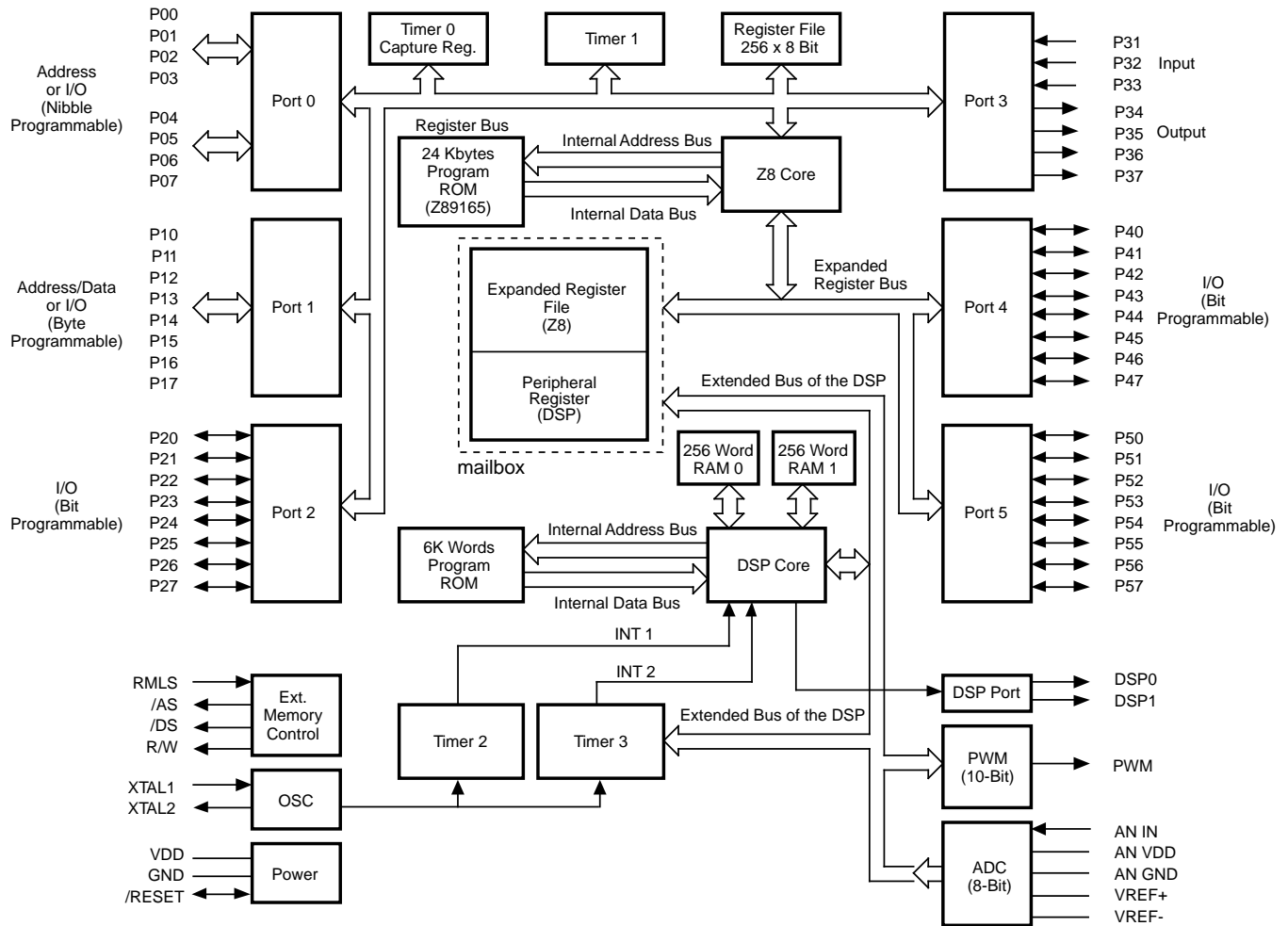
Notes:

All Signals with a preceding front slash, "/", are active Low, e.g.: B//W (WORD is active Low); /B/W (BYTE is active Low, only).

Power connections follow conventional descriptions below:

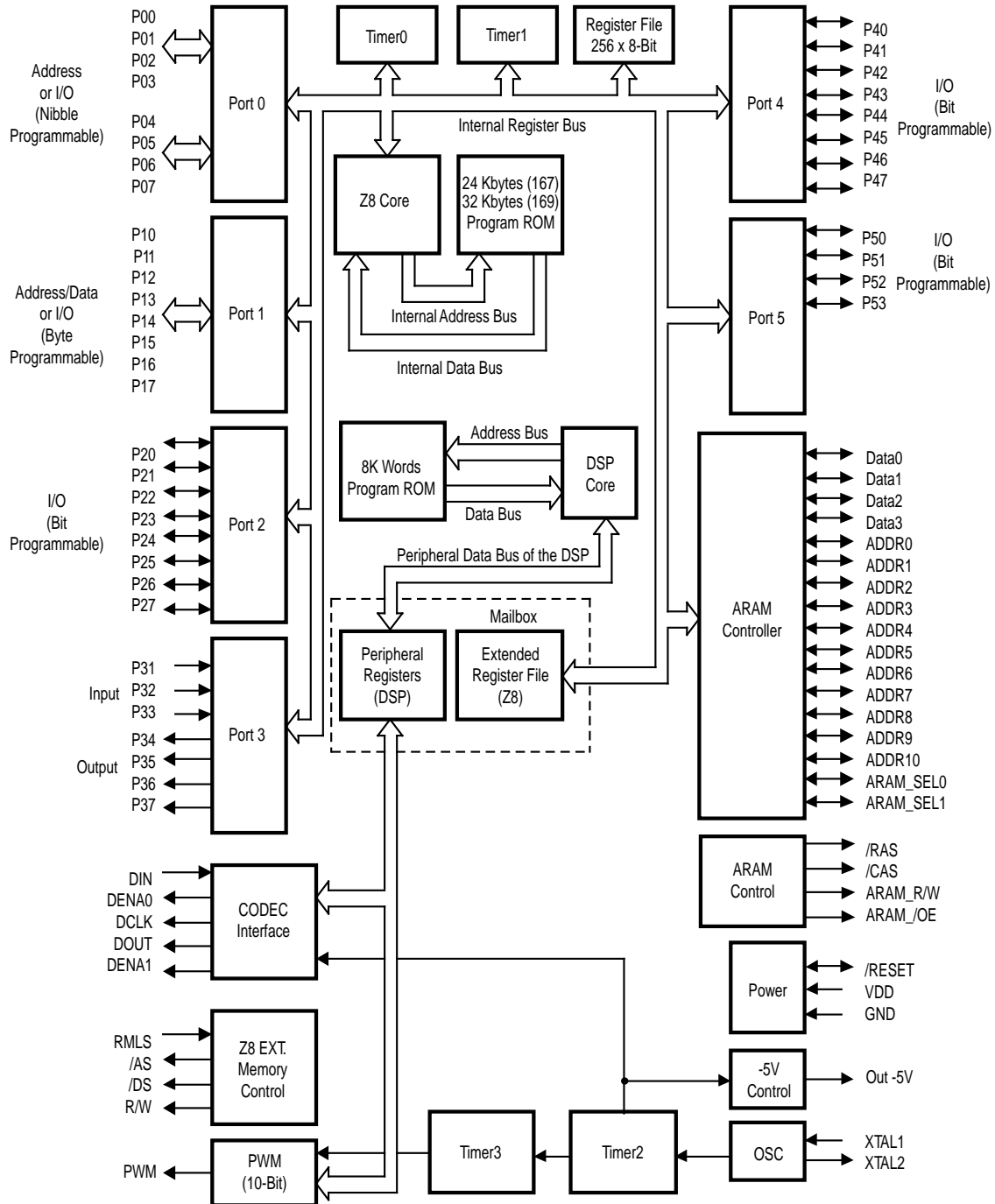
Connection	Circuit	Device
Power Ground	V _{CC} GND	V _{DD} V _{SS}

GENERAL DESCRIPTION (Continued)



Z89165/166 Functional Block Diagram

GENERAL DESCRIPTION (Continued)



Z89167/168/169 Functional Block Diagram

