

LC864000 Series

Overview

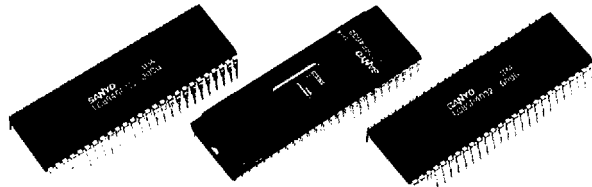
The LC864000 Series are high-speed, advanced-function CMOS 8-bit single-chip microcontrollers with an on-chip caption display function. When combined with a data slice front-end IC (LA7945), it can be used for TV sets with built-in closed-caption functions. Window EPROM versions and one-time PROM versions have been incorporated into the series, allowing development time for the application system to be greatly reduced.

The LC864000 Series microcontrollers integrate many powerful functions on a single chip. Centered around a CPU core that performs 8-bit processing in 1 μ s, the microcontroller includes 8 to 32K bytes of ROM, 256 bytes of RAM, and an OSD function for captions with 528 bytes of full-screen display RAM and character-generator ROM. Also included are a 16-bit timer/counter, a base timer, a 10-channel x 7-bit PWM, a 4-channel x 4-bit A/D converter, two 8-bit synchronized serial I/O channels (one of which is for an I²C bus), a watchdog timer, a remote unit signal receive circuit, I/O ports, numerous interrupts (11 sources and 9 vectors), and a standby function.

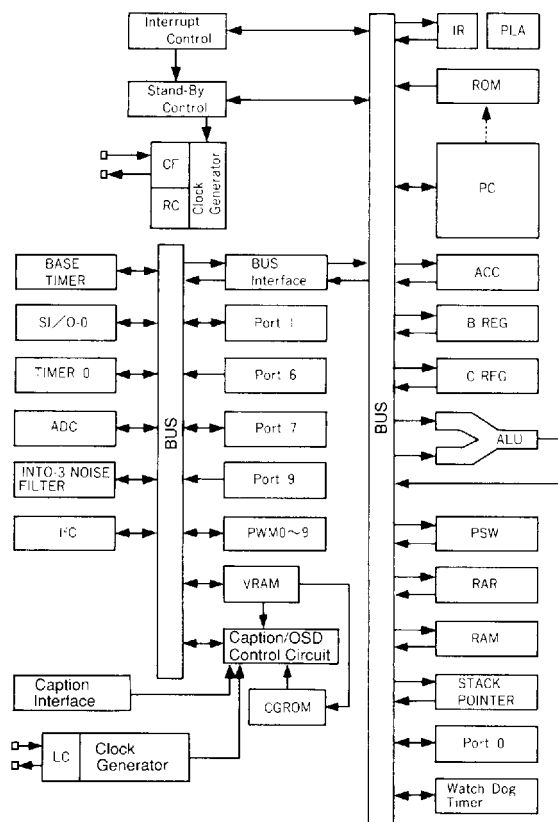
The LC864000 Series is optimum for controlling television sets equipped with the closed-caption function.

Features

- 8 to 32K bytes ROM
- 256 bytes RAM
- 528 bytes full-screen display RAM
- 16-bit timer/counter
 - With 8-bit programmable prescaler
 - Can be split as two 8-bit timer/counters
- 14-bit base timer
- Watchdog timer (with external RC)
- Two 8-bit serial I/O channels
 - One I²C bus serial interface
 - One serial interface with baud rate generator
- Remote unit signal receive circuit
- 10-channel x 7-bit PWM outputs
 - Withstands up to 15V
- 4-channel 4-bit A/D converter
- 20 I/O ports, 8 input-only ports
- Numerous interrupt functions
 - 11 sources (5 external, 6 internal) and 9 vectors
 - Control function for 3 levels of overlapping interrupts
- Standby function (HALT/HOLD mode)
- High-speed operation
 - Minimum cycle time: 1 μ s (bus cycle: 0.5 μ s)
 - High-speed execution of register/RAM bit manipulation instructions: 1 μ s
- Symmetrical instruction set common with LC860000 Series
 - 68 instructions



LC864032 Block Diagram



- OSD function
 - Can achieve optional FCC functions
 - 1) Text mode
 - 2) Color character display
 - 3) Lower-case character display
 - 4) Italic character display

LC864000 Series

| Type No. | ROM (bits) | RAM (bits) | Cycle time | OSD outputs | Ports | SI/O | Timer | A/D converter | Package | Evaluation chip | Notes |
|-----------|------------|---------------------------------|---------------------------|-----------------------------|-------------------|-----------------------------|---|---------------|---------|-----------------|---|
| LC864032A | 32K×8 | | | | | | | | | | |
| LC864028A | 28K×8 | | | | | | | | | | |
| LC864024A | 24K×8 | | | 16 lines x 32 digits | | | | | | | |
| LC864020A | 20K×8 | 256×8 (data) 528×8 (display) | 1μs bus cycle: (0.5μs) | 128 characters (6 x 9 dots) | 20 I/O 8 input | 8bits×2 can be used for bus | 16bits×1 can be split into 8-bit timers | 4bits×4ch | DIP-52S | LC86E4032 | <ul style="list-style-type: none"> • 7-bit 10-channel PWM • Remote control signal receive |
| LC864016A | 16K×8 | | | | | | | | | | |
| LC864012A | 12K×8 | | | | | | | | | | |
| LC864008A | 8K×8 | | | | | | | | | | |
| LC86P4032 | 32K×8 | | | | | | | | | — | One-time PROM version of LC8640XX Series |
| LC86E4032 | 32K×8 | | | | | | | | | — | Window EPROM version of LC8640XX Series |

Application Example

