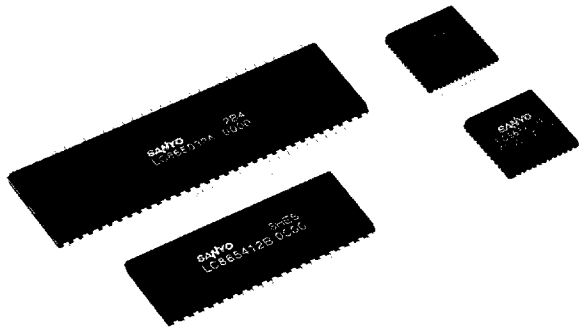
LC865000 Series

Overview

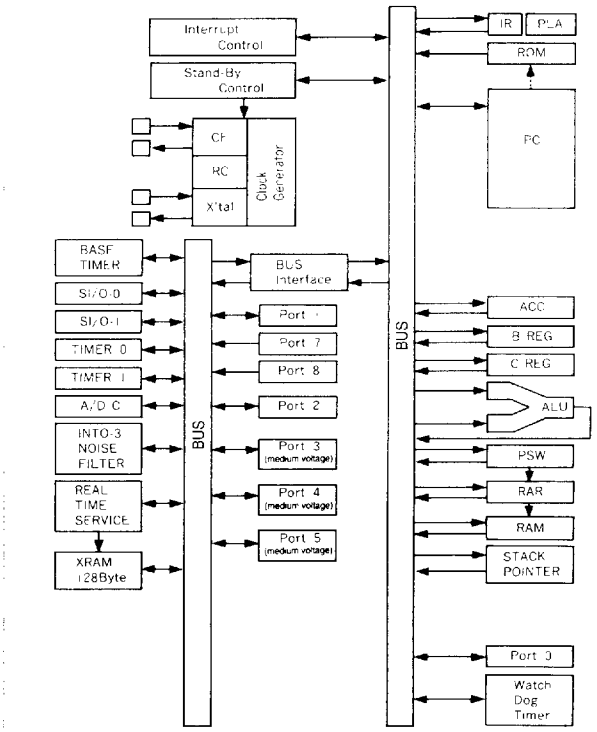
The LC865000 Series CMOS 8-bit single-chip microcontrollers are high-speed, advanced-function microcontrollers, with 8-bit A/D converters and medium-voltage I/O ports. EPROM with window versions and one-time PROM versions have been incorporated into the series, allowing development time for the application system to be greatly reduced.

The LC865000 Series microcontrollers integrate many powerful functions on a single chip, optimizing them for device control requiring realtime responses. These functions are centered on a high-speed CPU and a realtime service block that can perform its processing independently and in parallel. Also included are 4K to 32K bytes of ROM, 224 to 512 bytes of RAM, an 8-bit 8-channel A/D converter, a 16-bit timer/counter, a multiple-use PWM 16-bit timer, a timer for a realtime clock function, a watchdog timer, two channels of 8-bit serial I/O (one of which can be used for bus applications), a remote control signal receive circuit, I/O ports, numerous interrupts (13 sources and 10 vectors), and a standby function.

The LC865000 Series is ideal for controlling audio-visual equipment and household appliances.



LC865032 Block Diagram



Features

- 4K to 32K bytes ROM
- 224 to 512 bytes RAM
- 8-channel 8-bit A/D converter
- 16-bit timer/counter
  - With 8-bit programmable prescaler
  - Can be split into two 8-bit timer/counters
- Multiple-use PWM 16-bit timer (with the following four modes)
  1. One 16-bit timer
  2. Two 8-bit timers
  3. 8-bit timer + 8-bit PWM
  4. 9 to 16-bit PWM
- 14-bit timer for realtime clock function
- Watchdog timer (with external RC)
- Two 8-bit serial I/O channels
  - One for bus applications
  - One with 8-bit baud rate generator
- Remote control signal receive circuit
- 31 or 42 I/O ports, 6 or 12 input-only ports
- Numerous interrupt functions
  - 13 sources (5 external, 8 internal) and 10 vectors
  - Control function for 3 levels of overlapping interrupts
- Standby function (HALT/HOLD mode)
- High-speed operation
  - Minimum cycle time: 1 µs (bus cycle: 0.5 µs)
  - High-speed execution of register/RAM bit manipulation instructions: 1 µs
- Symmetrical instruction set common with LC860000 Series
  - 68 instructions
- Realtime service function
  - Performs 4-byte data transfer between special-function registers within 5 µs of an event being generated

Applications

- CD player (control/display/remote control unit)
- Amplifier (control/display)
- Tuner (control/display/electronic tuning)
- Home electronics (control/display/remote control unit)
- Communications equipment (control/display)
- Automotive devices (control/display)

■ LC865000 Series

Type No.	ROM (bits)	RAM (bits)	Cycle time	15V withstand ports	Normal voltage ports	SI/O	Timer	A/D converter	Package	Evalution chip	Notes
LC865032A	32K×8	512×8	1µs bus cycle: 0.5µs	18 I/O CMOS/Nch open drain selection is possible. However, the CMOS output selection ports are normally high-voltage.	24 I/O CMOS/Nch open drain selection is possible 12 input	8 bits × 2 can be used for bus	16bits × 2 can be split into 8-bit timers + 14-bit timer for clock	8 bits × 8 ch	DIP-64S QFP-64E	LC86E5032	• PWM outputs for tuners • Clock function • Remote control signal receive circuit • Realtime service function • Serial I/O for bus applications
LC865028A	28K×8										
LC865024A	24K×8										
LC865020B	20K×8	384×8									
LC865016B	16K×8										
LC865012B	12K×8										
LC865508B	8K×8										
*LC86P5032	32K×8	512×8							DIP-64S QFP-64E	—	One-time version of the LC8650XX Series
LC86E5032	32K×8								DIC-64S QFC-64E	—	EPROM with window version of the LC8650XX Series
*LC865412B	12K×8	224×8	1µs bus cycle: 0.5µs	15 I/O CMOS/Nch open drain selection is possible. However, the CMOS output selection ports are normally high-voltage.	16 I/O CMOS/Nch open drain selection is possible 6 input	8 bits × 2 can be used for bus 16-bit communication possible	16bits × 2 can be split into 8-bit timers + 14-bit timer for clock	8 bits × 8 ch	DIP-42S QFP-48E	LC86E5420	• PWM outputs for tuners • Realtime clock function • Remote control signal receive circuit • Realtime service function • Serial I/O for bus applications • 16-bit transmission SI/O
*LC865408B	8K×8										
*LC865404B	4K×8										
*LC86P5420	20K×8	512×8							DIP-42S QFP-48E	—	One-time version of the LC8654XX Series
*LC86E5420									DIC-42S QFC-48E	—	EPROM with window version of the LC8654XX Series

*: Under development