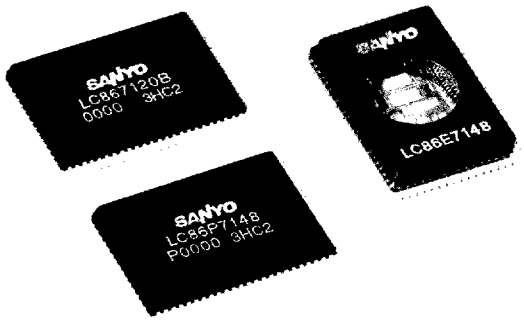
LC867000 Series (under development)

Overview

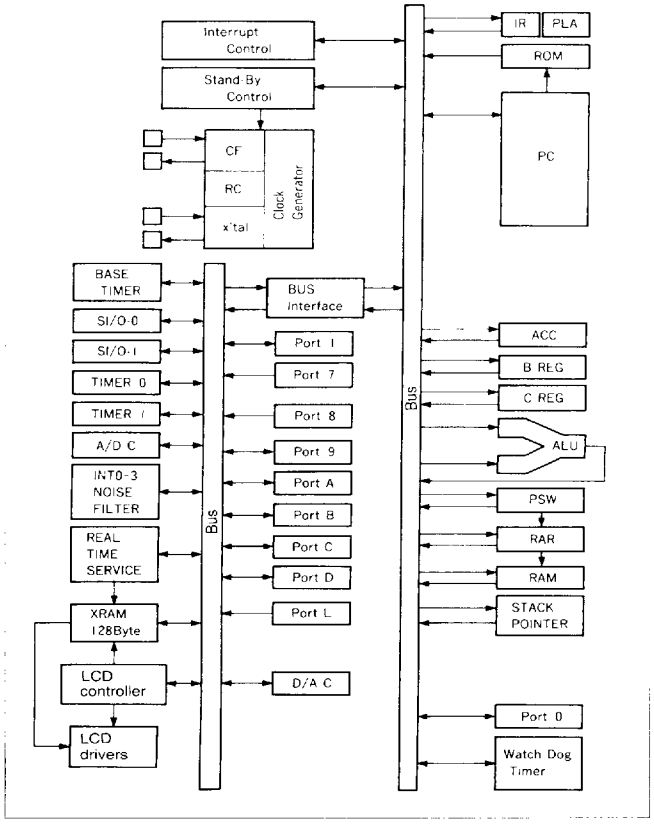
The LC867000 Series CMOS 8-bit single-chip microcontrollers are high-speed, advanced-function microcomputers with on-chip LCD controller/drivers, 8-bit A/D converters, and 8-bit D/A converters. EPROM with window and one-time PROM versions are also available within the series, which can help to greatly reduce development times.

In a design that is optimal for equipment control requiring realtime functioning, the chip features a high-speed CPU in series with a realtime service function capable of independent processing in parallel. Also integrated on this single chip are a diverse array of other powerful functions, including 8K to 20K bytes of ROM, 512 to 640 bytes RAM, an LCD controller/driver, an 8-channel 8-bit A/D converter, a 4-channel 8-bit D/A converter, a 16-bit timer/counter, a multiple-use PWM 16-bit timer, a 14-bit timer for realtime clock function, a watchdog timer, two channels of 8-bit serial IO , a remote control signal receive circuit, I/O ports, a variety of interrupt functions (13 sources and 10 vectors), and a standby function.

This series is ideal for controlling audio-visual equipment and household appliances that require LCD displays.



LC867120 Block Diagram



Features

- 8 to 20K bytes ROM
- 512 to 640 bytes RAM
- LCD controller/driver
  - 4 common ports (allowing data input)
  - 32 segment outputs (switchable CMOS input/output ports)
  - Duty cycle — static, 1/2, 1/3, or 1/4
  - Bias — 1/2 or 1/3
- 8-channel 8-bit A/D converter
- 4-channel 8-bit D/A 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
  - With one 8-bit baud rate generator
- Remote control signal receive circuit
- Up to 52 I/O ports and a maximum of 21 dedicated input ports
- Numbers 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 of 1 μs (bus cycle: 0.5 μs)
  - Register/RAM bit operation instruction execution speed: 1 μs
- Highly symmetrical instruction set (common with the LC860000 Series)
  - 68 instruction
- Realtime service function
  - 4-byte data transmission executed between special-function registers within 5 μs of an event being generated

Applications

- CD players (control / display / remote control unit)
- Amplifiers (control / display)
- Tuners (control / display / electronic tuning)
- Radio-cassette players (control / display / electronic tuning / remote control unit)
- Telephones (control / display)
- Household appliances (control / display / remote control unit)
- Communications equipment (control / display)
- Automotive equipment (control /display)

■ LC867000 Series

Type No.	ROM (bits)	RAM (bits)	Cycle time	LCD outputs	Ports	SI/O	Timers	A/D converter	Package	Evaluation chip	Notes
*LC867120B	20K×8	640 × 8	1μs (bus cycle 0.5 μs)	32 segment outputs (can double as CMOS I/O ports)	14 input ports	8 bits × 2 (can support bus, 16-bit transmission possible)	16 bits × 2 (can be split into 8-bit timers + 14-bit timer for clock)	8 bits × 8 ch	QFP-80E	LC86E7148	• LCD controller/driver • 8-bit 4-ch D/A converter • PWM output for tuners • Realtime clock backup • Remote control signal receive circuit • Realtime service function
*LC867116B	16K×8				20 normal withstand voltage I/O ports						
*LC867112B	12K×8	512 × 8		4 common outputs (allowing data input)							
*LC867108B	8K×8				16 CMOS/N ch open drain output selectable ports, 4 CMOS output ports						
*LC86P7148	48K×8	1024 × 8		3 external LCD drive power supply outputs (allowing data input)					QFP-80E	–	One-time PROM version of LC8671XX Series
*LC86E7148	48K×8								QFC-80E	–	EPROM with window version of LC8671XX Sereis

*: Under development