NMOS 4-Bit Single-Chip Microcomputers

LM6413/6416/6417

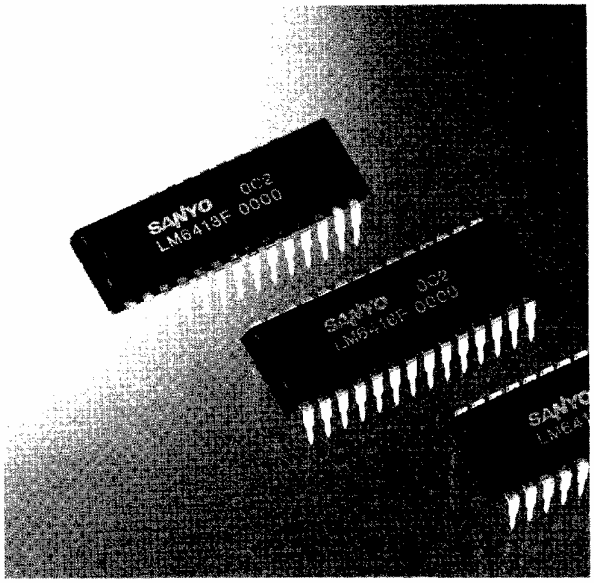
Overview

The LM6413/6416/6417 NMOS 4-bit single-chip microcomputers are optimized for consumer equipment. They are compact and powerful, yet have an excellent cost/performance ratio.

These microcomputers contain a high-speed 4-bit parallel-processing CPU core, 1K to 2K bytes of ROM, 64 to 128 words (by 4 bits) of RAM, a programmable timer, clock generator, and 17 to 21 I/O pins that can withstand up to 15 V and can interface directly with 12 V equipment.

The LM6413/6416/6417 microcomputers have 65 instructions. Their capabilities include subroutine nesting, a wide range of timer settings, automatic stepping of page settings, and pseudo-interrupt functions.

The LM6413/6416/6417 microcomputers are ideal for logic replacement in consumer equipment and for sub-CPUs in multi-CPU systems.



Features

- Single 5 V power supply with wide voltage operating range (4.5 to 6.5 V)
- N-channel E/D MOS
- CMOS/TTL compatible
- 1K to 2K bytes of ROM, 64 to 128 words (by 4 bits) of RAM
- Wide range of settings for programmable timer
- 17 to 21 I/O pins that can interface directly with 12 V equipment. All ports can withstand 15 V. Normal current output ports provide 20 mA.
- On-chip clock generator (ceramic resonator external)
  LM6413E/16E/17F : RC oscillator
  LM6413F/16F : Ceramic resonator
- Interrupts
  pseudo-interrupts, 1 internal, 1 external
- Schmitt trigger gates on-chip for reset and external interrupt pins
- Subroutine nesting
  2 levels
- Automatic stepping of page settings
- 1 Kbyte and 2 Kbyte versions/instruction and pin-compatible
- High-speed operation
  LM6413E/16E minimum cycle time : 4.0 µs at 4.5 V
  LM6413F/16F/17F minimum cycle time : 2.94 µs at 4.5 V
- Instruction set
  65 instructions

Applications

- Consumer equipment (logic replacement, sub-CPU of multi-CPU system)
- Other small to mid-scale equipment where low cost is needed (control)

■ **LM6413/6416/6417**

Type No.	ROM (bits)	RAM (bits)	Cycle time	Ports			SI/O	Timers	Package	Evaluation chip	Notes
				Withstand voltage	Current	No. of pins					
LM6413E	2K × 8	128 × 4	4.0 µs	15 V	20 mA	21	—	1	DIP-28S	LM64PG98	RC oscillator
LM6413F			2.94 µs								Ceramic resonator
LM6416E	1K × 8	64 × 4	4.0 µs	15 V	20 mA	21	—	1	DIP-28S	LM64PG97	RC oscillator
LM6416F			2.94 µs								Ceramic resonator
LM6417F	1K × 8	64 × 4	2.94 µs	15 V	20 mA	17	—	1	DIP-22	LM64PG97	RC oscillator

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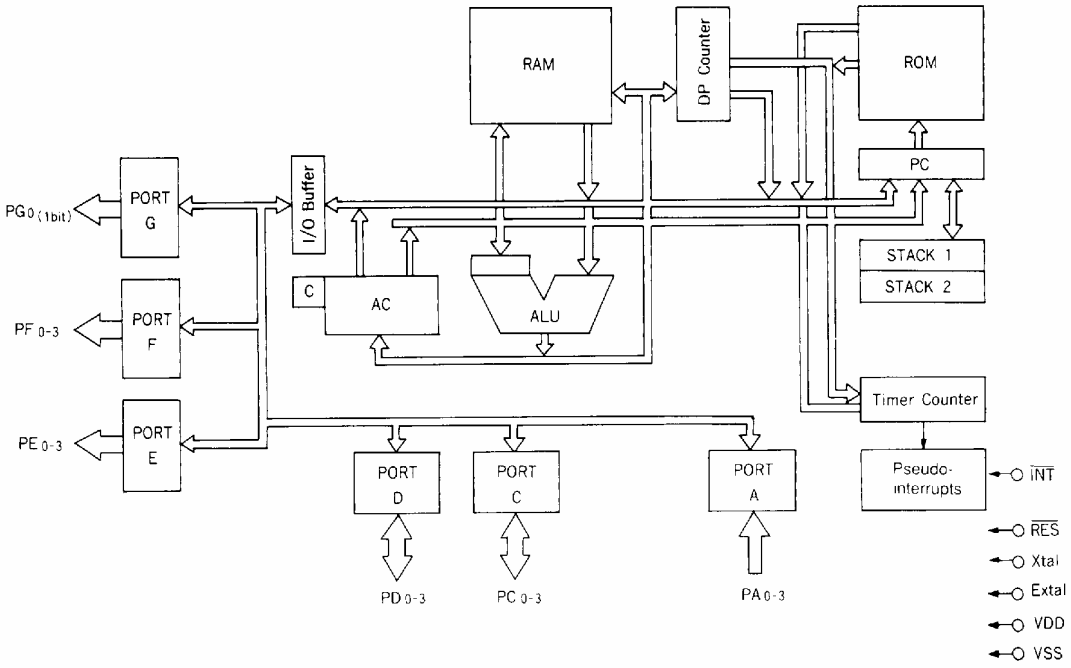
LM6413/6416 Block Diagram



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