

μPD7823X Family Of **8-Bit, Single-Chip, Real-Time** **Microcomputer With Internal** **A/D and D/A Converters**

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NEC

NEC Electronics Inc.

Advance Information

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Description

The μPD7823X high-performance, 8-bit single-chip microcomputers contain extended addressing capabilities for up to 1M byte of external memory. These devices also integrate sophisticated analog and digital peripherals, as well as two low-power standby modes which make it ideal for low-power/battery backup applications.

The μPD7823X core focuses on embedded control with features like hardware multiply and divide, two levels of interrupt response, four banks of main registers for multitasking, and macro service for processor independent peripheral and memory DMA. Augmenting this high performance core are advanced components like a high precision A/D converter, D/A converter, two independent serial interfaces, several counter/timers for PWM outputs, one dedicated PWM output, as well as a real time output port. On-board memory includes 640 bytes of RAM and 16K bytes of either mask-programmable ROM or EPROM.

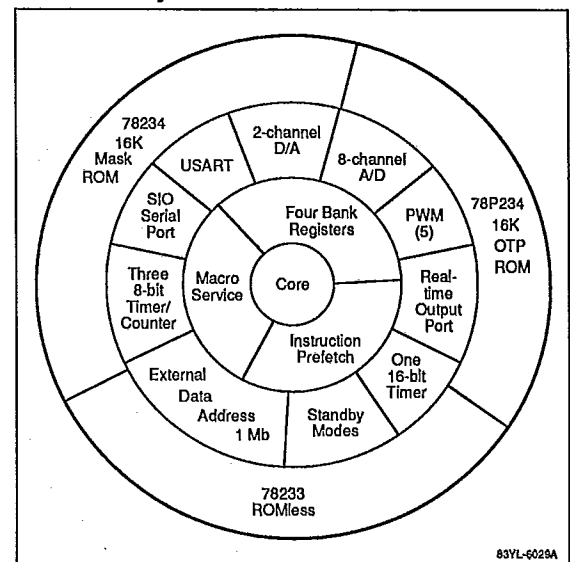
The macro service routine allows data to be transferred between any combination of memory and peripherals independent of the current program execution. The four banks of processor registers allow simplified context switching to be performed. Both features, combined with powerful on-chip peripherals, make this part ideal for a wide variety of embedded control applications.

Features

- Complete single-chip microcomputer
 - 8-bit ALU
 - 16K ROM
 - 640-byte RAM
 - Both 1- and 8-bit logic
- Instruction prefetch queue
- Hardware multiply and divide
- Memory expansion
 - 8085A bus-compatible
 - 64K program address space
 - 1M data address spaces
- Large I/O capacity: up to 54 I/O port lines
- Software programmable pull-up option
- Extensive timer/counter functions
 - One 16-bit timer/counter/event
 - Three 8-bit timer/counter/event
- Four PWM channels
- One dedicated PWM output
- Two 4-bit real-time output ports
- Eight channel 8-bit A/D converter

- 2-channel, 8-bit D/A Converter
- Extensive interrupt handler
 - Seven external interrupt ports (vectored)
 - Programmable priority
 - Macro-service mode
- Two independent serial ports
- Refresh output for pseudostatic RAM
- On-chip clock generator
 - 12 MHz maximum CPU clock frequency (0.33 μs minimum instruction cycle)
- CMOS silicon gate technology
- 5 V power supply

7823X Family Architecture



Ordering Information

Part Number	ROM/RAM	Package	Available
μPD78233GC	ROMless	80-pin plastic miniflat	Q489
μPD78233GJ		94-pin plastic miniflat	
μPD78233L		84-pin PLCC	
μPD78234GC	16K Mask	80-pin plastic miniflat	Q389
μPD78234GJ	ROM	94-pin plastic miniflat	
μPD78234L		84-pin PLCC	
μPD78P234G-36	16K OTP	80-pin plastic miniflat	Q489
μPD78P234GJ	ROM	94-pin plastic miniflat	
μPD78P234L		84-pin PLCC	

Block Diagram

