μPD7821X Family Of 8-Bit, Single-Chip, Real-Time Microcomputers With A/D Converter

NEC Electronics Inc.

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Description

The μPD7821X 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.

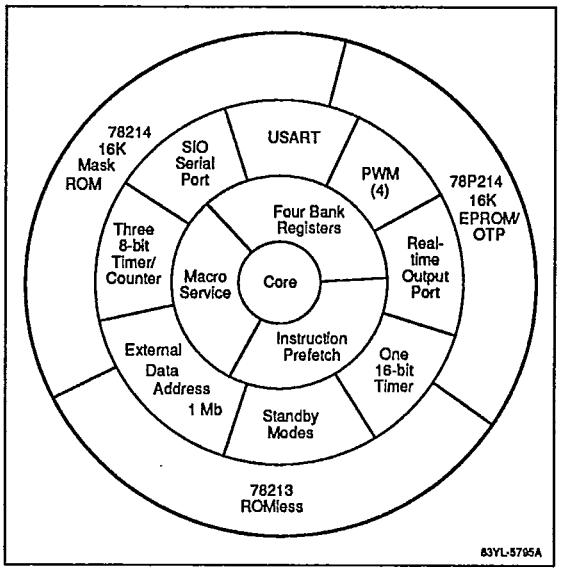
The μPD7821X core focuses on embedded control with features like hardware multiply and divide, two levels of interrupt response, four banks of main registers for multitasking, and macro service for processor independent peripheral and memory DMA. Augmenting this high performance core are advanced components like a high precision A/D converter, two independent serial interfaces, several counter/timers for PWM outputs, as well as a real time output port. On-board memory includes 512 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
  - 512-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
- Two 4-bit real-time output ports
- Eight channel 8-bit A/D 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

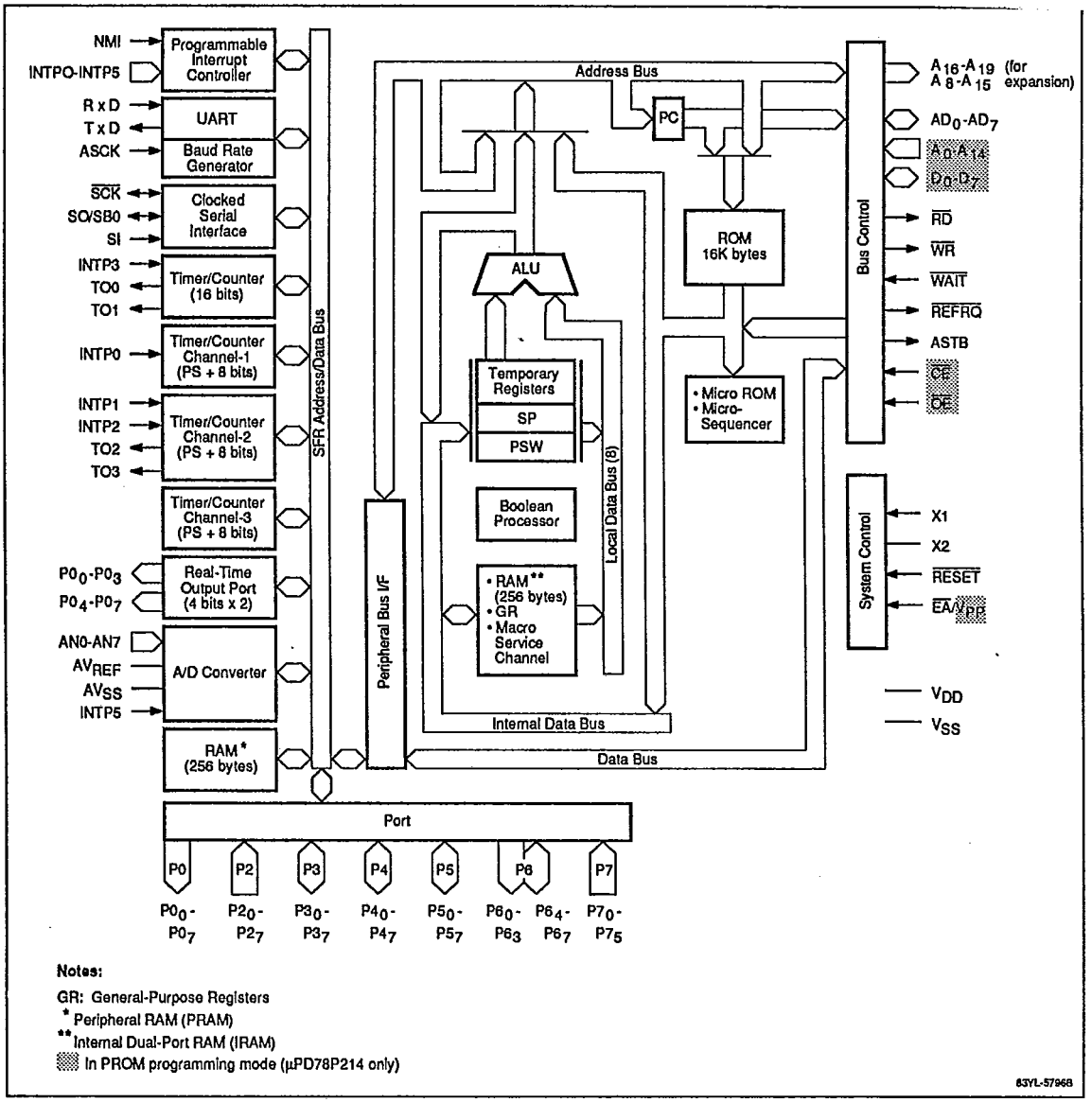
7821X Family Architecture



Ordering Information

Part Number	ROM	Package	Available
μPD78213CW	ROMless	64-pin plastic shrink DIP	Now
μPD78213G-36		64-pin plastic QUIP	Now
μPD78213GJ		74-pin plastic miniflat	Q489
μPD78213L		68-pin PLCC	Now
μPD78214CW	16K Mask	64-pin plastic shrink DIP	Now
μPD78214G-36	ROM	64-pin plastic QUIP	
μPD78214GJ		74-pin plastic miniflat	
μPD78214L		68-pin PLCC	
μPD78P214CW	16K OTP	64-pin plastic shrink DIP	Q289
μPD78P214G-36	ROM	64-pin plastic QUIP	
μPD78P214GJ		74-pin plastic miniflat	
μPD78P214L		68-pin PLCC	
μPD78P214DW	16K UV	64-pin shrink cerdip	Q389
μPD78P214R	EPROM	64-pin ceramic QUIP	

Block Diagram



Notes:

GR: General-Purpose Registers

* Peripheral RAM (PRAM)

** Internal Dual-Port RAM (IRAM)

▒ In PROM programming mode (μPD78P214 only)

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