



# C8051F230

## 8K Flash, 256 RAM, 48-Pin MCU

PRELIMINARY

### ANALOG PERIPHERALS

#### Two Comparators

- Programmable Hysteresis
- Configurable to Generate Interrupts or Reset

#### VDD Monitor and Brown-out Detector

#### ON-CHIP JTAG DEBUG

- On-Chip Debug Circuitry Facilitates Full Speed, Non-Intrusive In-System Debug (No Emulator Required!)
- Provides Breakpoints, Single Stepping, Watchpoints, Stack Monitor
- Inspect/Modify Memory and Registers
- Superior Performance to Emulation Systems Using ICE-Chips, Target Pods, and Sockets
- Low Cost, Complete Development Kit

#### SUPPLY VOLTAGE .....2.7V to 3.6V

- Typical Operating Current: 9mA @ 25MHz
- Typical Stop Mode Current: <0.1uA

#### Temperature Range: -40°C to +85°C

#### 48-Pin TQFP Package

### 8051-COMPATIBLE µC Core

- Pipelined Instruction Architecture; Executes 70% of Instructions in 1 or 2 System Clocks
- Up to **25MIPS** Throughput with 25MHz Clock
- Expanded Interrupt Handler

#### MEMORY

- 256 Bytes Data RAM
- 8k Bytes FLASH; In-System Programmable in 512 byte Sectors

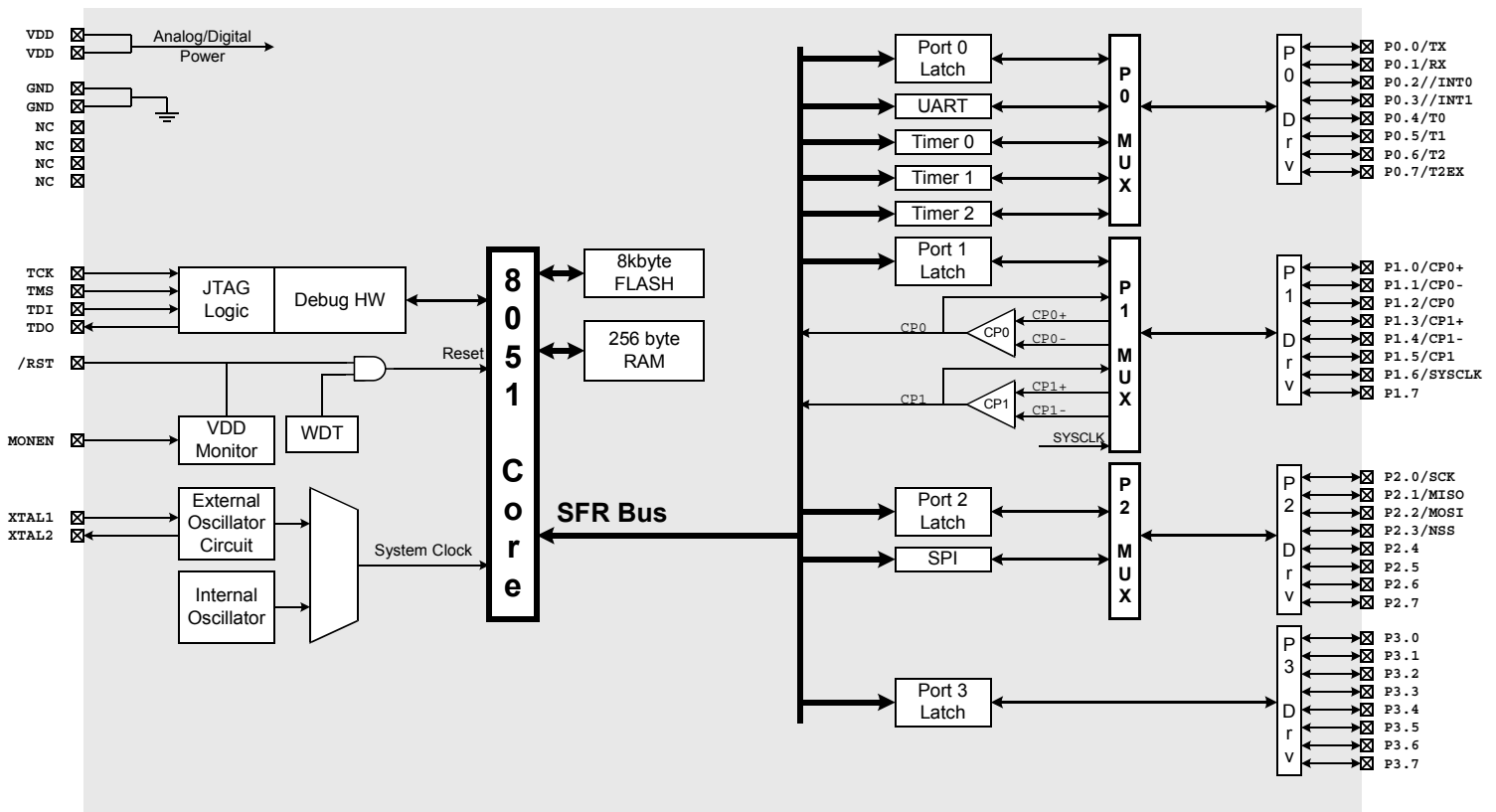
#### DIGITAL PERIPHERALS

- 32 Port I/O (All 5V tolerant with High Sink Current)
- Hardware SPI™ and UART Serial Ports Available Concurrently
- Three General Purpose 16-bit Counter/Timers
- Dedicated Watch-Dog Timer; Bi-directional Reset

#### CLOCK SOURCES

- Internal Programmable Oscillator (2 to 16MHz)
- External Oscillator: Crystal, RC, C, or Clock
- Can Switch Between Clock Sources on-the-fly; Useful in Power Saving Modes

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PRELIMINARY

SELECTED ELECTRICAL SPECIFICATIONS  $T_A = -40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$ ,  $V_{DD} = 2.7\text{V}$  unless otherwise specified.

| PARAMETER                     | CONDITIONS                                   | MIN | TYP | MAX | UNITS         |
|-------------------------------|----------------------------------------------|-----|-----|-----|---------------|
| <b>GLOBAL CHARACTERISTICS</b> |                                              |     |     |     |               |
| Supply Voltage                |                                              | 2.7 |     | 3.6 | V             |
| Supply Current (CPU active)   | Clock=25MHz                                  |     | 9   |     | mA            |
|                               | Clock=1MHz                                   |     | 0.4 |     | mA            |
|                               | Clock=32kHz; VDD Monitor Disabled            |     | 11  |     | $\mu\text{A}$ |
| Supply Current (shutdown)     | Oscillator not running; VDD Monitor Enabled  |     | 10  |     | $\mu\text{A}$ |
|                               | Oscillator not running; VDD Monitor Disabled |     | 0.1 |     | $\mu\text{A}$ |
| Clock Frequency Range         |                                              | DC  |     | 25  | MHz           |
| <b>COMPARATORS</b>            |                                              |     |     |     |               |
| Supply Current                | (each comparator)                            |     | 1.5 |     | $\mu\text{A}$ |
| Response Time                 | (CP+) – (CP-) = 100mV                        |     | 4.0 |     | $\mu\text{s}$ |

**PACKAGE INFORMATION**

|    | MIN (mm) | NOM (mm) | MAX (mm) |
|----|----------|----------|----------|
| A  | -        | -        | 1.20     |
| A1 | 0.05     | -        | 0.15     |
| A2 | 0.95     | 1.00     | 1.05     |
| b  | 0.17     | 0.22     | 0.27     |
| D  | -        | 9.00     | -        |
| D1 | -        | 7.00     | -        |
| e  | -        | 0.50     | -        |
| E  | -        | 9.00     | -        |
| E1 | -        | 7.00     | -        |

**C8051F226DK DEVELOPMENT KIT**