

### High-Speed 8051 $\mu$ C Core

- Pipelined instruction architecture; executes 70% of instructions in 1 or 2 system clocks
- Up to 25 MIPS throughput with 25 MHz system clock

### Memory

- 15 kB Flash; in-application programmable in 512-byte sectors
- 32 bytes Data EEPROM with 100,000 cycle read/write endurance
- 512 bytes data RAM
- External parallel data memory interface

### Analog Peripherals

#### 10-Bit Analog to Digital Converter ('F700)

- Up to 500 ksp/s
- 16 external inputs
- On-chip voltage reference (may use VDD or external voltage)
- Built-in temperature sensor
- External conversion start input option

### Comparator

- Programmable hysteresis and response time
- Configurable as interrupt or reset source

### Capacitive Touch Sense

- 16-bit capacitance-to-Digital Converter
- Superior Noise Immunity and fast 40 $\mu$ s acquisition time
- Up to 32 external inputs
- Auto-scan and compare
- Auto-accumulate 4x, 8x, and 16x samples

### Digital Peripherals

#### Up to 54 Port I/O with high sink current

- Flexible configuration using digital crossbar
- Many can be configured for analog or digital function
- Every pin can be optimized for its best use

### Serial Communications

- HW enhanced UART
- SMBus™ (I<sup>2</sup>C compatible)
- Enhanced SPI™

### User Programmable Timing Functions

- Four general purpose 16-bit counter/timers
- 16-bit programmable counter array (PCA) with three capture/compare modules and enhanced PWM capability
- Real-time clock mode using enhanced timer and crystal

### Clock Sources

- Calibrated Internal programmable oscillator
  - Calibrated to 2% accuracy over temp and Vdd
  - 24.5 MHz to allow max speed CPU operation
  - Supports crystal-less UART operation
- External oscillator: Crystal, RC, C, or Clock
- Can switch between clock sources on-the-fly

### Supply Voltage: 1.8 to 3.3 V

- Built-in voltage supply monitor

### Temperature Range: -40 to +85 °C

### TQFP-64 Package

