

#### 100 MIPS, 16x16 MAC, 32 kB Flash, 10-Bit ADC, Mixed-Signal MCU

### **Analog Peripherals**

#### 10-Bit ADC

- Programmable throughput up to 200 ksps
- Up to 17 external inputs; programmable as single-ended or differential
- Reference from internal V<sub>RFF</sub>, V<sub>DD</sub>, or external pin
- Internal or external start of conversion sources
- Built-in temperature sensor (±3 °C)

#### 10-bit DAC (Current Mode)

#### **Two Comparators**

- Programmable hysteresis and response time
- Configurable to generate interrupts or reset
- Low current

#### **On-Chip Debug**

- On-chip debug circuitry facilitates full speed, non-intrusive in-system debug (no emulator required)
- Provides breakpoints, single stepping, watchpoints
- Inspect/modify memory, registers, and stack
- Superior performance to emulation systems using ICE-chips, target pods, and sockets

Supply Voltage: 2.7 to 3.6 V

Temperature Range: -40 to +85 °C

#### High-Speed 8051 µC Core

- Pipelined instruction architecture; executes 70% of instructions in 1 or 2 system clocks
- Up to 100 MIPS throughput with 100 MHz system clock
- 16 x 16 multiply/accumulate engine (2-cycle)

#### Memory

- 1280 bytes data RAM
- 32 kB Flash; in-system programmable in 512 byte sectors (512 bytes are reserved)

#### **Digital Peripherals**

- 24 port I/O: all are 5 V tolerant
- Hardware SMBus™ (I2C™ compatible), SPI™, and UART serial ports available concurrently
- Programmable 16-bit counter/timer array with six capture/compare modules, WDT
- 4 general-purpose 16-bit counter/timers
- Real-time clock mode using PCA or timer and external clock source

#### **Clock Sources**

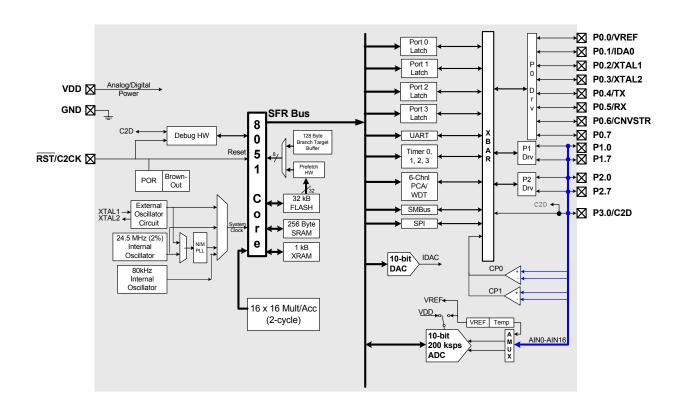
- Two internal oscillators:
  - 24.5 MHz, 2% accuracy supports UART operation
  - 80 kHz low frequency, low-power
- External oscillator: Crystal, RC, C, or Clock (1 or 2 pin modes)
- On-Chip programmable PLL: up to 100 MHz

#### **Package**

- 28-pin QFN
- Pin compatible with C8051F311

#### **Ordering Part Number**

- C8051F362-GM





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## **Selected Electrical Specifications**

 $(T_A = -40 \text{ to } +85 \text{ C}^{\circ}, \text{VDD} = 2.7 \text{ V} \text{ unless otherwise specified})$ 

Parameter	Conditions	Min	Тур	Max	Units
	Global Characteristics				
Supply Voltage		2.7	_	3.6	V
	Clock = 100 MHz	_	TBD	_	mA
Supply Current with	Clock = 25 MHz	_	TBD	_	mA
CPU active	Clock = 1 MHz	_	TBD TBD	_	μΑ
Committee Committee (alternative committee)	Clock = 80 kHz; V <sub>DD</sub> Monitor Disabled Clock = 32 kHz; V <sub>DD</sub> Monitor Disabled				μA
Supply Current (shutdown)	Oscillator off; V <sub>DD</sub> Monitor Disabled		<0.1	_	μA
Clock Frequency Range		DC	_	100	MHz
Internal Oscillators					
Frequency (OSC0)		24.0	24.5	25.0	MHz
Frequency (OSC1)	OSC1 can be calibrated in 2.5% steps using an internal calibration register.	_	80	_	kHz
	A/D Converter				
Resolution			10		bits
Integral Nonlinearity		TBD	±0.5	TBD	LSB
Differential Nonlinearity	Guaranteed Monotonic	TBD	±0.5	TBD	LSB
Signal-to-Noise Plus Distortion		TBD	TBD	_	dB
Throughput Rate		_	_	200	ksps
Input Voltage Range		0	_	$V_{REF}$	V
	D/A Converter			l .	
Resolution			10		bits
Integral Nonlinearity		_	±0.5	TBD	LSB
Differential Nonlinearity	Guaranteed Monotonic	_	±0.5	TBD	LSB
Output Settling Time		_	5	_	μs
	Comparator		I		
Response Time Mode0	(CP+) - (CP-) = 100  mV		100	_	ns
Current Consumption Mode0		_	TBD	_	μA
Response Time Mode1	(CP+) - (CP-) = 100  mV	_	175	_	ns
Current Consumption Mode1		_	TBD	_	μA
Response Time Mode2	(CP+) - (CP-) = 100  mV	_	320	_	ns
Current Consumption Mode2			TBD	_	μA
Response Time Mode3	(CP+) - (CP-) = 100  mV		1050	_	ns
Current Consumption Mode3			TBD	_	μA

## **Package Information**

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# C8051F360DK Development Kit

