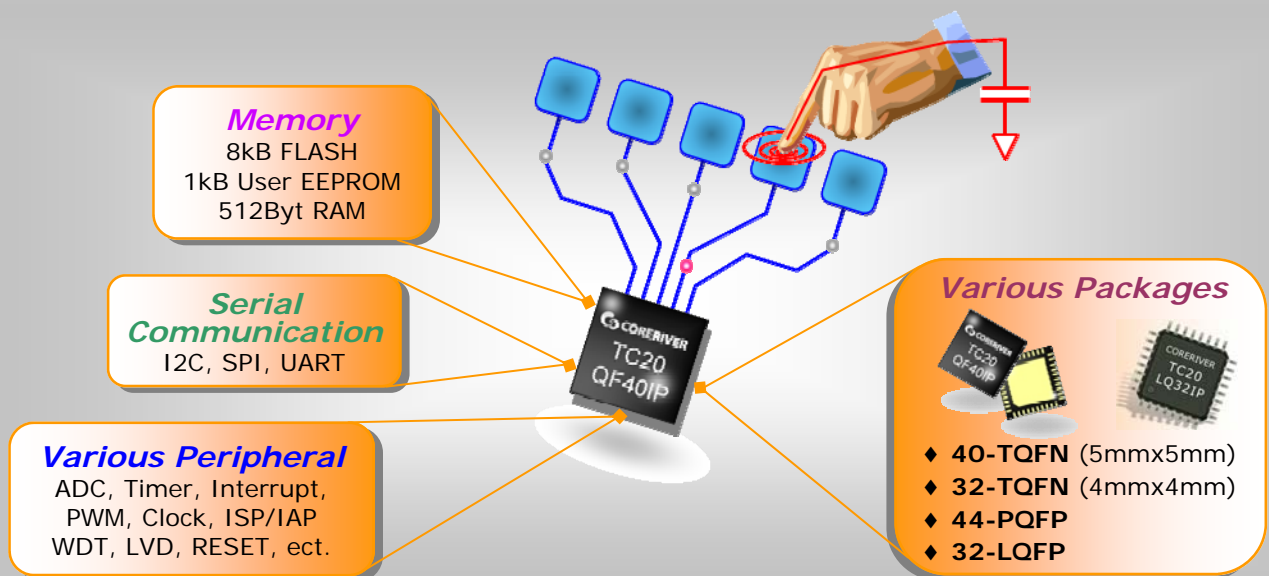


## TouchCore 2.0 Family 8-bit turbo 80C52 Architecture



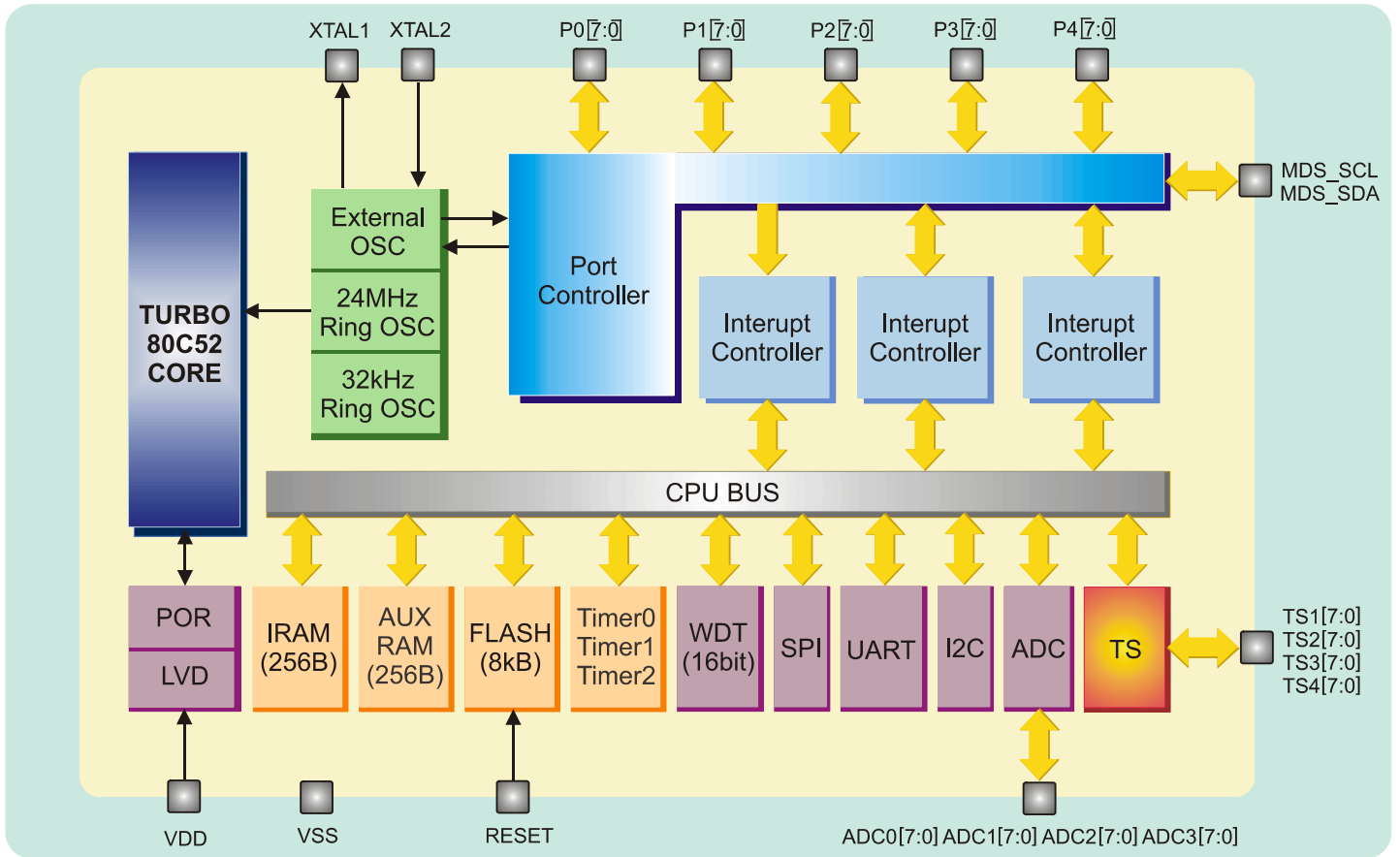
### Features

- ◆ **CPU:** 8-bit turbo 80C52 architecture  
 4 cycles/1 machine cycle  
 instruction level compatible with 80C52
- ◆ **Operating Voltage:** 1.8V ~ 5.5V
- ◆ **Temperature Range:** -40° to 85°C
- ◆ **Operating Frequency:** max. 40MHz @5.0V  
 max. 20MHz @3.0V
- ◆ **Max. 40 I/O Pins:** programmable  
 Pull-up control, open drain, push-pull output  
 TTL and CMOS compatible logic levels
- ◆ **Low Voltage Detector (1,6V)**
- ◆ **Internal Ring OSC:** with calibration function  
 max. 12MHz @5.0V  
 4MHz @2.7V ~ 5.0V (±3%)  
 32kHz @2.7V (±10%), (Low power OSC)
- ◆ **Watchdog Timer:** 3 x 16-bit programmable
- ◆ **Timer/Counters:** 3 x 16-bit
- ◆ **PWM:** 16-channel 8-bit high speed
- ◆ **UART:** Full-Duplex
- ◆ **I2C:** 2-channel (I2C Master/Slave, I2C Slave)
- ◆ **15 Interrupt Sources:**  
 Timer0/1/2, WDT, LVD, ADC, UART, I2C, TS  
 6 External Source: both edge/level  
 two-level interrupt priority
- ◆ **Reset Sources:** On-chip power-on-reset  
 External reset  
 Low voltage detector reset  
 Watchdog timer reset
- ◆ **32-channel 10-bit ADC:**  
 max. 104ksps (@FADC= 10MHz)  
 Programmable input clock frequency
- ◆ **32-channel Touch Sensing:** 44PQFP/40TQFN
- ◆ **24-channel Touch Sensing:** 32LQFP/32TQFN  
 max. 65536 level sensitivity (16 bit)



- ◆ **Power Consumption:**  
 active current: max. 1mA @3V, 2MHz  
 idle current: max. 0.5mA @3V, 2MHz  
 snap current: typ. 6µA @2V (Touch Sensing)  
 stop current: max. 5µA @3V (WDT on)  
 all clock off: max. 1µA @5V
- ◆ **Supporting:** ISP (In-System Programming)  
 IAP (In-Application Programming)
- ◆ **Power Down Wake-up Sources:**  
 Reset Sources + 6 External interrupt (both edges)
- ◆ **1-channel I2C:** Master/Slave
- ◆ **1-channel SPI:** Master/Slave
- ◆ **E.S.D. Protection up to:**  
 6kV for Touch Sensor pad  
 2kV for normal I/O pad
- ◆ **Latch-up Protection:** up to ±200mA

# Block Diagram



# Advantages

## TouchCore

Detections Type	Digital Detection
Environmental Noise (Power, Humidity, Light, Temperature, ect.)	<b>Robust on the Noise</b>
Cost	<b>Low</b>
External Components	<b>Needless</b>
Touch Resolution	<b>Max. 64k Level</b>
Detection Speed	<b>Fast</b>
Available Touch Sensors	<b>Single-, Matrix-, Scroll Bar-, Complex-</b>
Power Consumption	<b>Snap Mode Support (typ. 6uA)</b>