



AX2005 8-bit CMOS Microcontroller



High Performance 8-bit RISC MCU

- DC-125MHz operation
- Compatible with 8051
- 40ns internal interrupt response at 125 MIPS
- All instructions are single-cycled except branching instructions
- Two data pointers for indirect addressing

Program Memory and Data Memory

- 32K Bytes OTP program memory
- 64K Bytes instruction SRAM used for program and/or data memory
- 256 Bytes internal data SRAM
- 64K Bytes External Memory Interface (EMI), support DMA to on-chip SRAM

Interrupt Features

- 26 vectored interrupts
- 3 levels interrupt priority
- External wakeup/interrupt capabilities on Port 1
- 2 levels interrupt priority selection for all the hardware interrupt sources except Watchdog and LVD where they occupy the third level

Flexible I/O

- 60 GPIO pins in 7 and a half ports.
- All GPIO pins can be individually programmable as input or output
- All GPIO pins are internally pull-up selectable
- CMOS/TTL-level Schmitt triggered inputs
- All GPIO pins are 8mA sink/source current output driving

Digital Peripheral Features

- Two 16-bit timers compatible with 8051's timer0 timer1
- Two multi-function 16-bit timers, support Capture and PWM mode
- Two 8-bit timers, support Capture mode
- Watchdog Timer with on-chip 1MHz RC oscillator
- Two high-speed full-duplex UART
- Two high-speed SPI, support DMA
- 1 GPSI interface, support DMA
- Two 4-channel IIS interfaces, support DMA
- 1 programmable linear feedback shift registers
- 1 CRC FIFO, can use for CRC16 and CRC32 calculating
- 1 ECC FIFO
- 1 16-bit/24-bit DSP engine, support DMA
- 1 Bit-fetcher, can use for bit stream analyzing
- Full-speed USB 2.0 OTG controller with 4

endpoints (including endpoint 0) and 512 bytes FIFO in total

Analog Peripheral Features

- 4~20MHz Crystal Oscillator
- 1MHz RC oscillator
- Full-speed USB 2.0 OTG PHY
- 40~200MHz Flexible PLL-based clock generator
- 2 channels 16bit Class-D DAC
- 1 channel 8 levels Low Voltage Detector
- Power-on reset
- 3.3V to 1.8V Low Drop-Out regulator

Programming and Debugging Support

- In-System Programming (ISP) support
- In-System Debugging (ISD) support

Power Supply

- LDOVDD, VDDIO, PLLVDD is 3.0-3.6V
- VDDCORE is 1.6-2.0V

Packages

- 80-pin LQFP (10mm x 10mm)
- 64-pin LQFP (10mm x 10mm)
- 48-pin LQFP (7mm x 7mm)
- DIE form

Temperature

- Operating temperature: -40°C to +85°C
- Storage temperature: -65°C to +150°C

Applications

- Wireless Digital Multimedia Baby Monitor
- Digital Microphone for interference free transmission



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