

# PRODUCT BRIEF ATJ2089

Portable Music & Image Player Platform SoC

(USB / Flash / HDD / Voice / Audio / Image)

#### Features

- MPEG1/2/2.5 Audio Layer 1,2,3 decoder, bit-rate: 8~448Kbps,8~48KHz,CBR/VBR
- Support WMA Decoder, bit-rate: 32~384Kbps,8~48KHz
- Digital Voice Recording at ultra low 4.4 or 8Kbps with Actions Speech Algorithm
- Supports WMA Digital Rights Management (DRM 10) and other security schemes
- 24 bits DSP Core and 8-bit MCU with on-chip Debug Support Unit (DSU)
- Support up to 3(pcs)\* 32M / 64M / 128M / 256M / 512M / 1G / 2G / 4G bytes Nand type Flash
- External SMC / MMC / SD / CF /IDE interface support
- Support from 8M up to 64M x8 SDRAM interface
- Support 24.576MHz OSC with on-chip
  PLL for DSP and 32.768KHz oscillator
- 2-channel DMA, 1-channel CTC (Counter / Timer Controller) and interrupt controller
- Energy saving dynamic power management (PMU), supporting 1\*AA(A), 2\*AA(A), and Li-ion battery

### Application Highlight

- MP3 Player with DSC or PC Camera
- MP3 Player with HDD
- MP3 Player with USB2.0 High Speed

- Built-in USB 2.0 (FS) Compliance RHY+SIE, almost 1M bytes downloading speed
- Build in Stereo 18-bit Sigma-Delta DAC and its modulator digital out
- Build in Key Scan Circuit(8\*12) and GPIO(max38+3,duplex)
- I2C / SPI / UART / IrDA interface
- Support external LCM (STN / Color-STN / TFT)
- Support CMOS Sensor(0.3M or 1.3M pixel)
- Support external USB2.0 High Speed controller
- FM tuner input and control support
- Support Stereo 18-bit Sigma-Delta ADC for Microphone / FM Input / Line Input , sample rate at 8 / 12 / 16 / 24 / 32 / 48KHz

MCU run at 24.576MHz(typ.) and can be

- programmed from DC up to 60MHz
- DSP Speed up to 80MIPS
- THD+N: 80dB (typ.)
- SNR: 88dB (typ.)

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- Output: 2x11Mw @16ohm
- Standby Current: VCC:15uA, VDD: <110uA
- Low Power Consumption:70mW (typ.) -- MP3 decoder solution; 80mW (typ.) -- WMA decoder solution
- Package: LQFP128(14\*14 mm)
- Translator with Audio & Image
- PDA with Music Playback & Camera & Photo viewer

## ATJ2089

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### **Function Description**

The ATJ2089 is a second generation single-chip highly-integrated digital music system solution for devices such as dedicated audio players, and PDAs. The ATJ2089 can be programmed for CMOS Sensor, MP3, WMA and other digital audio standards. It can act as a mass storage device of a PC through USB Port Connecter. The ATJ2089 has low power consumption which is ideal for a battery and an efficient flexible on-chip DC-DC converter that allows many different battery configurations, including 1\*AA, 1\*AAA, 2\*AA, 2\*AAA and Li-ion. The built-in Sigma-Delta DAC includes a headphone driver to directly drive low impedance headphones. The Sigma-Delta ADC includes inputs for both Microphone and Analog Audio to support voice recording and FM radio integration features. Thus, the AT 2089 provides a true 'ALL-IN-ONE' solution-that is ideally suited for high quality digital audio players.

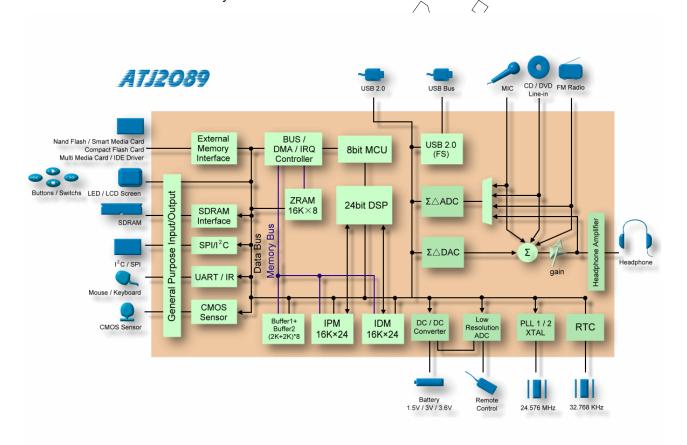


Figure1. ATJ2089 Block Diagram

Additional product and company information can be obtained by going to the Actions website at: <u>www.actions.com.cn</u>.

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