New Generation of 8-bit MCU SoC

by Frank Lin
SoC Contents

3 Key Structures

1. General Purpose MCU
2. CMOS Sensor with DSP
3. Bluetooth Low Energy
Application in U-disk Gaming Mouse

U-disk Mouse

- LED Driver
- RAM
- DSP
- Motion Data
- Sensor Array
- Regulator
- PWM, SPI, I2C & GPIO Cells Logic
- 8051 Core
- RAM
- USB
- Flash

Pattern & Shadow Image

Surface

Gaming Mouse

DPI Sensitivity

DPI Sniper

Report Rate

Pulsate
Application in Wearable Device

HRM Total Solution

- Image Sensor
- LED Driver
- AFE
- Image processor (DSP)
- SPI/I2C
- PPG data

BLE

MCU

Touch screen Controller

Analog device
3-Axis Acc. meter (motion detect)

Images of people exercising and heart rate monitors.
Application in Dusty Detector

Application in Dusty Detector

- PM2.5の迅速な対応強化！
- 集塵スピードがさらに速く！

価格.comマガジン版 2014
加湿空気清浄機の選び方

好空気 看的見

ダイキン「ハウスダストセンサー」ランプ
（PM2.5検知センサー）
Application in Simple Gesture

Simple Gesture

LED Driver
RAM
DSP
Motion
Data
Regulator
PWM, SPI, I2C &
GPIO Cells Logic
8051 Core
RAM
USB
Flash

Sensor Array

RIGHT WAVE TAP COVER LEFT

8051 Core
RAM
URL
Flash

Simple Gesture
Application in Touchless Control

免觸碰開關
Application in Touchless Control

Sanitary Equipment

免觸碰馬桶 (日本公廁)

免觸碰水龍頭
Application in Consumer

自行車外掛里程表、時速表
Application in Consumer

Interactive Toys

- Microphone(s)
- Camera(s)
- Speaker(s)
- Motor(s)
Application in Internet of Things
Application in Internet of Things

- 燈光遺忘關閉 (無線開關)
- 門窗是否關好 (無線門磁)
- 人體感應警報 (PIR)
- 即時影像監視 (IP Camera)
SoC Contents Review

1. General Purpose MCU
2. CMOS Sensor with DSP
3. Bluetooth Low Energy
SoC Contents Review

1 General Purpose MCU

SiliconLab C8051F35x

- **Analogue Peripherals**
  - 24/16-bit ADC
  - 8-bit IDAC
- **Digital I/O**
  - Port 0
  - Port 1
  - UART
  - SMBus
  - SPI
  - PCA
  - Timer 0
  - Timer 1
  - Timer 2
  - Timer 3

- **24.5 MHz Precision Internal Oscillator with Clock Multiplier**

- **High-Speed Controller Core**
  - 8 kB ISP Flash
  - Flexible Interrupts
  - 8051 CPU (50 MIPS)

http://www.2cm.com.tw/zoomin_content.asp?sn=0701010545
SoC Contents Review

(20x30um)^2 Sensor with DSP

Avago ADNS3050

- Power and Control
- Image Array
- LED Drive
- DSP
- Oscillator
- Serial Port and Registers
SoC Contents Review

3 Bluetooth Low Energy

TI BLE CC254x
New Generation of 8-bit MCU SoC

- **MCU**
- **Sensor**
- **BLE**

Total Solution
Profit of the Products

- New Generation of 8-bit MCU SoC
- BLE SoC
- 8-bit GP MCU
2015年產品應用預期銷售量

以上數據未經實際調查，僅供本次報告模擬參考用。
Thank You!

by Frank Lin