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# ST-NXP Wireless

## IMPORTANT NOTICE

Dear customer,

As from August 2<sup>nd</sup> 2008, the wireless operations of STMicroelectronics have moved to a new company, ST-NXP Wireless.

As a result, the following changes are applicable to the attached document.

- **Company name - STMicroelectronics NV** is replaced with **ST-NXP Wireless**.
- **Copyright** - the copyright notice at the bottom of the last page “© STMicroelectronics 200x - All rights reserved”, shall now read: “© ST-NXP Wireless 200x - All rights reserved”.
- **Web site** - <http://www.st.com> is replaced with <http://www.stnwireless.com>
- **Contact information** - the list of sales offices is found at <http://www.stnwireless.com> under Contacts.

If you have any questions related to the document, please contact our nearest sales office. Thank you for your cooperation and understanding.

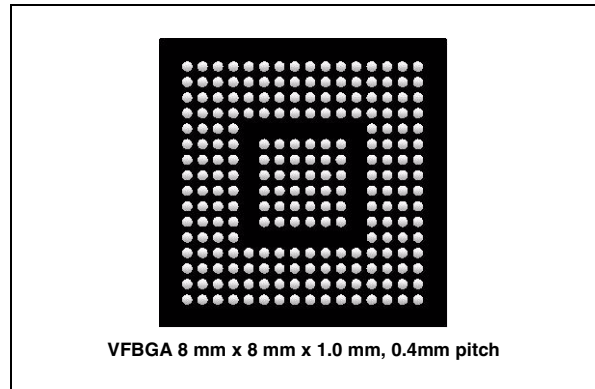
ST-NXP Wireless

## Mixed-signal multimedia and power management IC

Data Brief

### Features

- Power management for platform
  - 3 programmable step-down converters
  - 6 programmable LDOs
- Audio
  - Dual high-quality stereo codecs
  - DAC: dynamic range and SNR > 100 dB
  - Two TDM 4-channel interfaces (configurable in I2S and PCM)
  - AB class headset capless stereo amplifier
  - D class loudspeaker stereo amplifier (2 x 1 W)
- USB 2.0 OTG interface
  - High-speed (480 Mb/s) OTG transceiver
  - ULPI interface
  - VBUS peripheral supply up to 100 mA
- TVout
  - CVBS output
  - PAL, NTSC TV standards supported
- General-purpose analog digital converter
  - 4- and 5-wire touch screen interface
  - Main and back-up battery monitoring
  - Accessory detection
- Clock management
  - 32 kHz oscillator with RTC
  - System clock oscillator (38.4 MHz, 26 MHz, 19.2 MHz supported)
- Miscellaneous
  - ON/OFF key driver
  - Temperature shutdown
  - Lead-free and halogen-free package



### Applications

- Nomadik™ STn88xx multimedia processor
- Smartphones, portable media player

### Description

STw4820 is a highly integrated mixed signal multimedia and power management IC that enables complete integration of all analog functions needed in high-end mobile phones or portable multimedia applications.

With its highly efficient set of regulators, STw4820 optimizes overall power consumption of multimedia processor and its peripherals.

The high fidelity and versatile embedded audio codec offers best-in-class audio quality and extensive uses cases.

The high-speed USB transceiver makes PC synchronization faster than ever. Integrated OTG supply enables data transfer towards other peripherals.

# 1 Overview

## 1.1 Power management for platform

- 3 very low load/line transient step-down converters
  - for core DSP, I/Os, peripherals, external memories, DDR, SRAM
  - programmable from 0.8 up to 1.8 V
  - 800 mA current capability
  - 12.5 mV step for digital voltage frequency scaling
- 6 LDOs
  - for PLLs, processor permanent core, high-speed interface and peripherals
  - 1.2 V to 3.3 V with current capability up to 200 mA.

## 1.2 Audio

- Dual stereo codec
- DAC: dynamic range and SNR > 100 dB
- Multiple mixing capabilities and use case support
- Two TDM 4-channel interfaces (configurable in I2S and PCM)
- Switchable differential stereo inputs, line or microphone
- Two digital microphone inputs able to manage 4 digital microphones
- Differential microphone stereo inputs
- AB class headset capless stereo amplifier
- AB class earpiece differential amplifier
- D class loudspeaker stereo amplifier (2 x 1 W)
- D class vibrator differential amplifier

## 1.3 USB 2.0 OTG interface

- High-speed (480 Mb/s), full-speed (12 Mb/s) and low-speed (1.5 Mb/s) OTG transceiver
- UART mode
- ULPI interface
- VBUS charge pump can supply an external USB device (100 mA).

## 1.4 TVout

- 27 MHz PLL
- YCbCr 4:2:2 8-bit input format
- CVBS output
- TV standards supported
  - PAL B, D, G, H, I, N, Nc, M
  - NTSC M, J, 4.43
- Macrovision 7.1.L.1
- TV/VCR plug insertion detection

## 1.5 General-purpose analog digital converter

- Touch screen interface
  - supports 4 and 5-wire resistive touch screen
  - supports joystick (exclusive with touch screen)
- Main battery monitoring
- Backup battery monitoring
- Two auxiliary inputs
- Two accessory detection inputs

## 1.6 Clock management

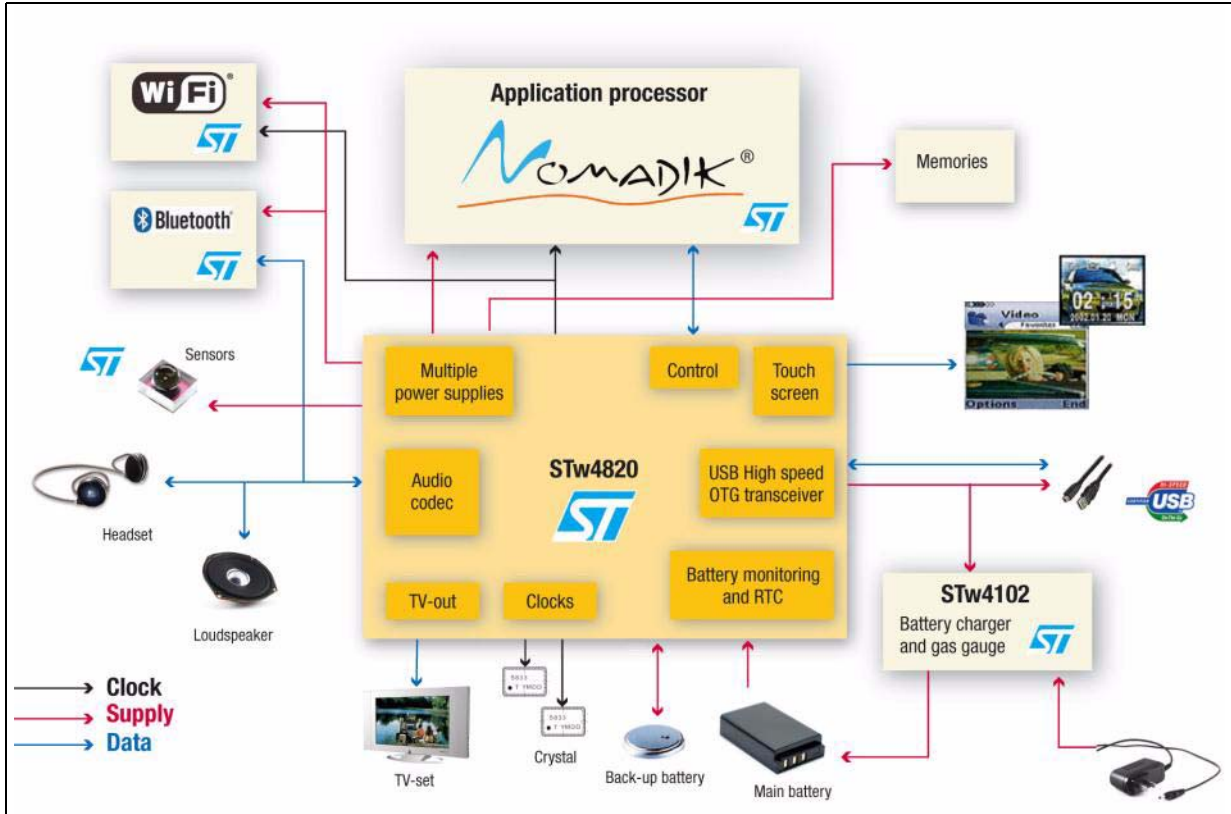
- 32 kHz oscillator with RTC
- System clock oscillator (38.4, 26, 19.2 MHz supported)
- System clock and 32 kHz clock distribution

## 1.7 Miscellaneous

- ON/OFF key driver
- Temperature shutdown
- SPI interface for control
- Dedicated I2C bus for Vcore1 dynamic voltage control
- Backup battery control and charge

## 2 Block diagram

Figure 1. STw4820 functional block diagram



### 3 Ordering information

**Table 1. Order codes**

Order codes	Package	Packing
STW4820U4/HF <sup>(1)</sup>	VFBGA 8 mm x 8 mm x 1 mm, 0.4 mm pitch	Tray
STW4820U4T/HF	VFBGA 8 mm x 8 mm x 1 mm, 0.4 mm pitch	Tape and reel

1. ECOPACK® package.

### 4 Revision history

**Table 2. Document revision history**

Date	Revision	Changes
07-Feb-2008	1	Initial release.

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