CSR8675 Product Overview

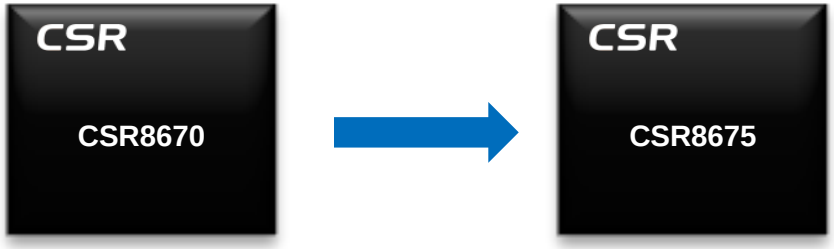
Dave Brotton

CSR

Push every boundary.™

CSR8675 - Introduction

- Builds on the success of the CSR8670 flash platform
- Increased processing power enables advanced audio processing requirements to meet the needs of
  - Soundbars
  - Speakers
  - Stereo headsets



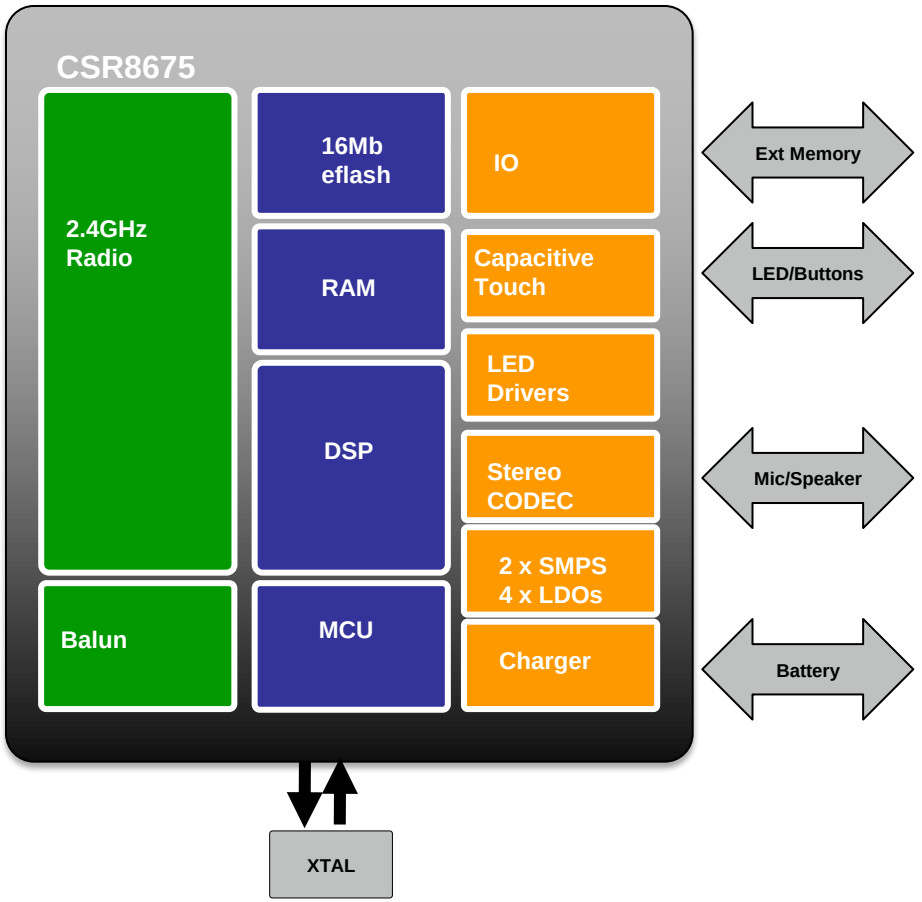
CSR8675: Product Overview

System Features

- BT4.1 support
- 16Mb eflash and up to 64Mb external serial flash
- Increase DSP performance up to 120 MIPS
- RF Perf: Tx:+10dBm, Rx -90dBm (DQPSK)
- 6 x Capacitive touch sensors inputs
- 2 x additional GPIOs

Audio

- Integrated high performance stereo DAC & ADCs
- Up to six digital microphone inputs
- Support for ANC feed-forward architecture
- 24 bit Audio support DAC-DSP-ADC
- 2 x I2S Interfaces
- SPDIF bit clock to determine sample rates



CSR8675: Product Overview

Power Management

- 2 x highly efficient SMPS with smaller external components
- USB 3.3V regulator
- Integrated linear regulators

Battery Charger

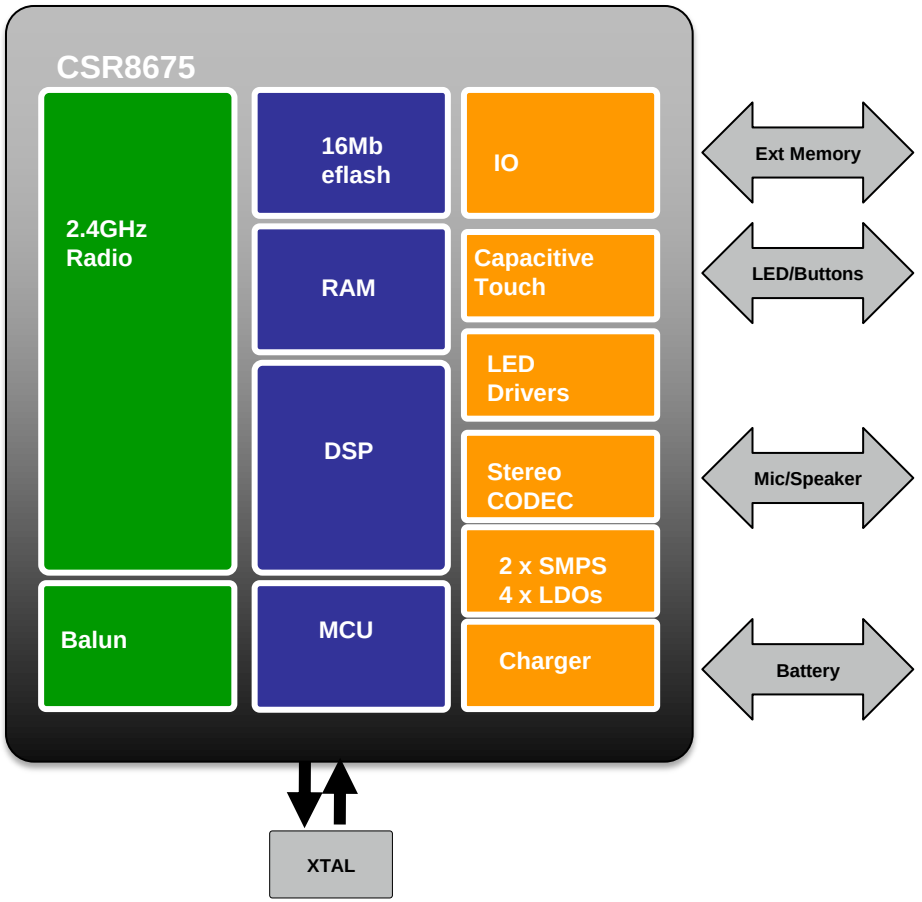
- Li-Ion battery charger with for support up to 200mA charge currents and option for higher charge currents using BJT

Package Options

- BGA & WLCSP (Pin compatible with CSR8670)

Part Numbers

- CSR8675B-IBBH-R (BGA)
- CSR8675B-ICXT-R (WLCSP)

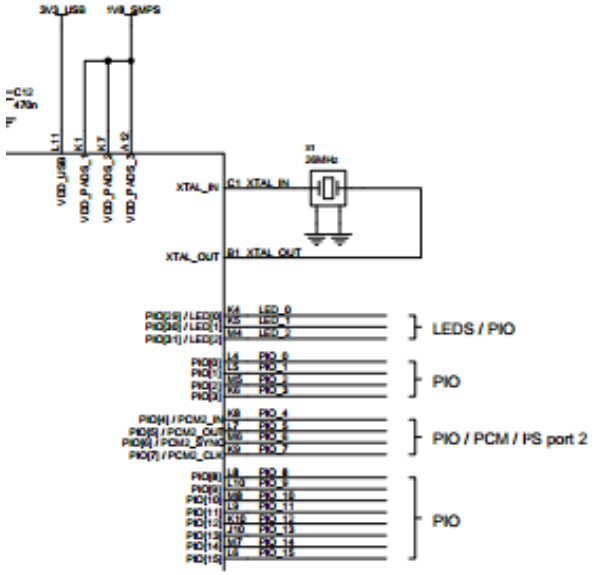


CSR8675: 120MHz Kalimba DSP

- Upgraded the Kalimba audio DSP core to operate at 120MHz
- This translates to an increased performance of up to 120 MIPS
- Value add for end user:
  - Increased MIPs available on the DSP allows for greater audio processing algorithms to be supported
  - E.g. Dolby AC-3 decode plus aptX encode for Soundbar use cases
- Enables significant opportunities for product differentiation through advanced audio performance

CSR8675: Additional digital audio interface

- A second digital port (PCM, I²S and S/PDIF) has been added to CSR8670
- Enables multiple audio interfaces in speaker and soundbar products
- Value add for end user
  - I²S DAC can be used at the same time as S/PDIF input
  - Enables higher quality audio output for speaker devices

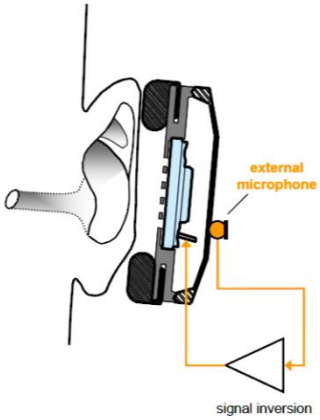


CSR8675: 24bit Audio Support

- Hardware and firmware support for 24bit audio
- All digital interfaces (PCM, I^2S and S/PDIF) support 24bit wide audio
- Supports 24bit digital microphones
- The CSR8675 data rate allows many combinations of supported use cases, some examples are:
  - One x 192KHz, 24 bit mono channel (bi-directional)
  - One x 96KHz, 24 bit stereo channels (bi-directional)
  - Two x 48KHz, 24 bit stereo channels (using 2 unsynchronised I^2S ports)

CSR8675: Ambient Noise Cancellation

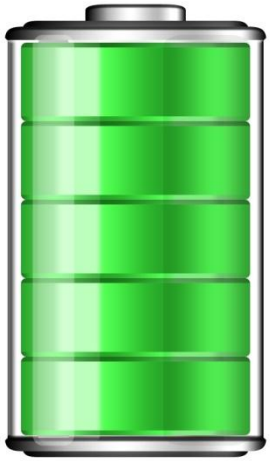
- Highlights
  - CSR8675 uses a feed-forward architecture
  - Is a fully digital solution



- Value proposition overview:
  - Lowers complexity of adding ANC to a BT headset
  - Lowers the cost of adding ANC
    - No separate IC
    - Smaller PCB
    - Power consumption benefits
  - Works alongside cVc to deliver optimum noise reduction on calls

- Status
  - ANC algorithm development underway
  - Full roll out planned 2015

CSR8675: Current Consumption



- CSR8675 provides much greater processing power, for a minor increase in current consumption compared to the CSR8670

- Full characterisation of the current profile is still in progress, but initial indications show:
  - 5% increase on standby current (compared to CSR8670) - primarily this is due to the more complex clock-tree running at 120MHz
  - The mA/MIPs value is still being validated

CSR8675: Schedule