

# SINGLE-CHIP GSM/GPRS FOR ULC+

PNX4902 - ultra-low-cost solution with value-added multimedia and connectivity features

This second-generation solution builds on the groundbreaking PNX4901. It delivers enhanced audio integration and performance, value-added multimedia features such as stereo MP3 playback and FM recording, Bluetooth™ connectivity and extensive peripheral support.

As part of the PNX49xx family, the PNX4902 offers lowest cost of ownership, best-in-class RF performance, longest battery life and robust security. The PNX4902 enables a new class of ULC+ handsets that offer highly desirable features at a greatly reduced price, thus expanding the reach of these technologies to millions more consumers in emerging and developed markets.



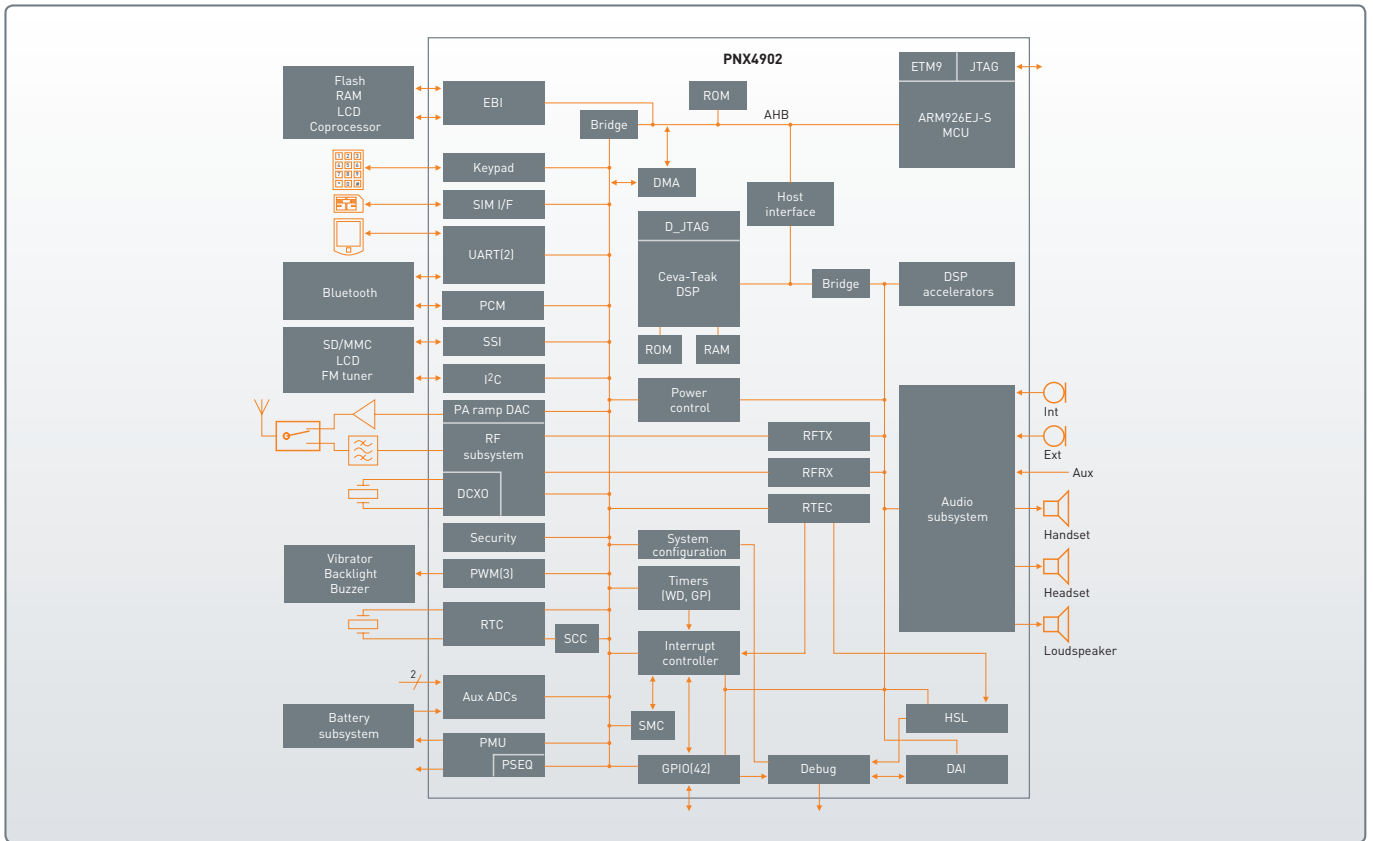
## KEY FEATURES

- Complete GSM/GPRS solution in a single monolithic IC
  - GPRS class 10
  - SAIC for increased network capacity
  - A5/1, A5/2, A5/3 encryption
  - TTY/CTM support
  - R99 protocol stack, mature and field-tested worldwide
- Completely integrated RF transceiver
  - Tri-band
  - Proven, industry-leading Aero transceiver core
- Complete PMU subsystem
  - Integrated battery-charging circuitry and all voltage regulators (LDOs and DC-DC)
- Integrated audio subsystem
  - 40-voice MIDI + MP3 and AAC ringtones
  - Stereo MP3 playback
  - Microphone amplifier with 2 different inputs
  - 3 audio output amplifiers, including a high-performance 8 Ω driver
  - Speakerphone with echo cancellation and noise suppression
- Hardware security based on 128-bit RSA
  - Robust yet flexible SIM/Flash lock
- Integrated connectivity and peripheral support
  - Support for external camera
  - Bluetooth 2.0 with A2DP, GAP, HSP, HFP, OPP, FTP, SPP, DUN profiles

- FM playback and record
- SD/MMC support
- Touchscreen support
- I<sup>2</sup>C-bus, SPI, two UARTs, PCM, PWM
- 1.8/3 V SIM card interface
- Color LCD up to 176 x 200 pixels, 65k colors
- Standard RoHS-compliant package
- 273-ball PBGA (10 x 10 mm, 0.5 mm pitch)

## KEY BENEFITS

- Mature and proven platform
  - Tested worldwide across 50 operator networks
- Lowest total BOM cost
  - 2x to 3x fewer external components than for multi-chip designs
- Best-in-class RF performance
  - Exceptional call quality and lowest dropped calls resulting in enhanced user experience
- Lowest current consumption
  - Cheaper, smaller batteries
  - Extended battery life
- Robust security
  - Reliable protection against hacking
- Best-in-class audio performance
  - Loud and clear voice calls and music



PNX4902 block diagram

**LOWEST COST OF OWNERSHIP**

The very high level of integration achieved by the PNX4902 enables the smallest footprint solution with the minimum number of external components.

A complete tri-band GSM/GPRS modem can be implemented in 500 mm<sup>2</sup> with just 56 external components on an inexpensive 4-layer PCB. The only external ICs needed for the modem are a PA and memory.

**A BETTER END-USER EXPERIENCE**

The PNX4902 offers exceptional RF, audio and power performance that translates into a more enjoyable end-user experience.

Leveraging the Aero transceiver core, proven in over 500 million handsets worldwide, the PNX4902 provides significant margin to key GSM specifications across commonly encountered stress conditions in the field (such as extreme

temperature and low battery voltage). Coupled with a mature telecom protocol stack tested across 50 operator networks, this enables excellent call quality in remote areas with sparse network coverage as well as congested urban environments. The SAIC feature boosts network capacity further. Advanced echo cancelation, noise suppression and loudness boost algorithms make every call clearer, even in noisy public spaces.

Industry-lowest power consumption ensures that the battery lasts longer. With a small, inexpensive 600 mAh battery, 5 hours of talk time and over 420 hours of standby time are possible.

The PNX4902 is in mass production at leading global OEMs and ODMs. For fastest possible time-to-market, the PNX4902 hardware reference design is accompanied by a flexible, pre-integrated and fully validated software solution that also reduces R&D expenses.

LET'S CREATE IT

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