



NXP Nexperia cellular system solution 7210

The fastest way to deliver a feature-rich 3G cellular phone

This ARM9-based, dual-mode platform is fully GCF/PTCRB tested. It lets OEMs and ODMs save time while delivering feature-rich 3G cellular phones that offer industry-leading standby and talk times.

Key features

- ▶ State-of-the-art ARM926-based GSM/GPRS/EDGE/UMTS platform
 - Class A simplified (DTM) slot class 11
 - GPRS/EDGE slot class 12, EDGE MSC1-9
 - Release 99 Modem compliant with latest GCF and PTCRB tests
 - Fully validated Interoperability Testing (IOT)
 - More than 200 million Nexperia systems already deployed
- ▶ High-performance multimedia features
 - Display sizes up to QVGA resolution and 18-bit color
 - Fully integrated 3-Mp YUV camera-sensor interface compliant with CCIR 601/6556
 - Video playback: H.263, MPEG-4 30 fps, CIF, H.264 15 fps QCIF with AMR-NB or AMR-WB or AAC audio
 - Video recording: H.263, MPEG-4 30 fps CIF with AMR-NB or AMR-WB audio
 - Video telephony: H.263, MPEG-4 15 fps QCIF with AMR-NB
 - Audio/video streaming and progressive download: H.263, MPEG-4, H.264 15 fps QCIF with AMR-NB or AMR-WB or AAC audio
 - Audio playback: MP3, AAC, AAC+, eAAC+, WMA
 - 128 voices stereo software polyphony at 32 kHz, standard MIDI, general MIDI, SP MIDI, mobile DSL, mobile XMF
 - DRM 2.0 and advanced system integrity (secure SIM lock)
 - High-performance JAVA fully JTWI-compliant
- ▶ Advanced, integrated connectivity features
 - Bluetooth® 2.0+EDR with large set of profiles
 - Low-power WLAN 802.11g
 - Near Field Communication (NFC)
 - USB OTG, IrDA, MMC/SD/T-Flash card
- ▶ Supported by Nexperia Mobile Developer's Kit (NMDK)
- ▶ Dedicated local support and customer training available

The NXP Nexperia cellular system solution 7210 is a powerful, highly integrated dual-mode UMTS multimedia platform for the Value Added Services (VAS) 3G mobile phone market.

It supports "true UMTS" performance, delivering seamless service coverage (i.e. "see what I see") in 2G and 3G networks. It offers high bit-rate availability in 2G (E-GPRS multislots Class 12) and UMTS, and provides seamlessly integrated voice and data services in 2G (DTM) and UMTS.

The 7210 provides a wide range of multimedia and connectivity services while minimizing power consumption to deliver industry-leading standby and talk times. Manufactured in very high volume, it is a cost-effective solution that comes fully GCF/PTCRB tested, so OEMs and ODMs can save time while delivering mature, reliable technology.

Market-proven solution

Supplied with all the hardware, software, and tool components for a finished design, the 7210 enables rapid capitalization in fast-growing markets. More than 200 million Nexperia-based systems have been brought to market, making these platforms some of the most extensively proven designs available.

Optimized core chipset

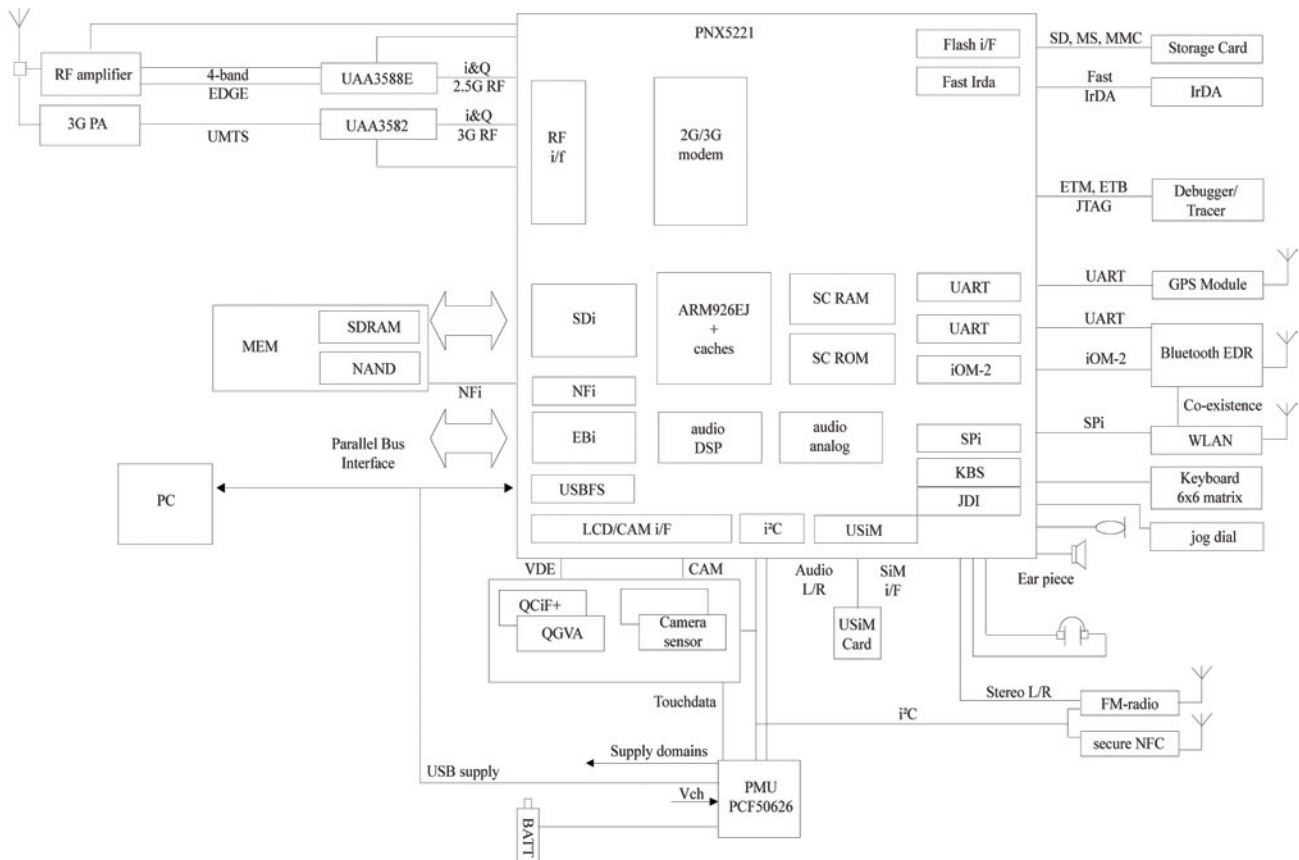
Each IC in the core chipset has been optimized to deliver high performance in a very small format. On top of the advanced 2G and 3G modem functions, the Nexperia multimedia UMTS

baseband integrates an ARM9 core for applications and high-level protocol, and a 16-bit DSP dedicated to advanced audio functions. The baseband performs advanced functions like still-image capture and MPEG-4 video record and playback. Dual-mode radio functionality is provided by two RF transceivers.

The platform supports quad-band GSM/GPRS/EDGE class 12 and single-band UMTS operation, and meets the requirements listed in 3GPP release 5 specifications. A highly integrated power management unit (PMU) reduces power consumption and saves board space by combining power-supply generation, battery management, and battery charging, and even offers a touchscreen interface.

Built-in multimedia and connectivity features

The core chipset is enhanced by built-in multimedia features, including a dedicated audio DSP and video hardware accelerators, that raise the 7210 to a higher level of multimedia performance.



Block diagram of the NXP Nexperia cellular system solution 7210

Three ICs, one each for low-power WLAN 802.11g (Wi-Fi), Bluetooth 2.0+EDR, and Near Field Communication (NFC), are integrated into the platform and provide wireless connectivity at every level of bandwidth. To ensure peak performance, the Wi-Fi and Bluetooth ICs have been specially designed for seamless coexistence. The platform also includes a self-tuning FM/RDS stereo radio that delivers very high audio quality with very low power consumption (down to 13 mA).

Further options for multimedia, broadcast, and connectivity

For completely tailored performance, the 7210 architecture can quickly be extended with additional features. In particular, unique LifeVibes™ products from NXP Software provide enhanced performance in video, still imaging, audio, voice,

and security applications. The platform supports Java J2ME, WAP2.0, and conforms to MMS OMA 2.0. Design teams can also add their own or third-party software to the basic system.

Dedicated support worldwide

The NXP Nexperia Mobile Developer's Kit has all the elements needed to start with a Nexperia cellular system solution platform. To help customers design the right products quickly, we offer an extensive support network of software engineers and cellular experts working in locations throughout the world, with an especially strong presence in Asia. We combine this field support with regularly held training sessions, for hands-on learning.

Optimized core chipset

Type number/description	Package	Footprint
NXP Nexperia multimedia UMTS baseband PNX5221 GSM/GPRS/EDGE/DTM/UMTS baseband that supports advanced multimedia functions like still-image capture and MPEG-4 video record and playback. On top of the advanced 2G and 3G modem functions, it integrates an ARM9 core for applications and high-level protocol and a 16-bit DSP dedicated to advanced audio featuring. An advanced set of peripheral and accelerators (USB OTG, Fast IrDA, I ² C, A-GPS, security, memory card, camera sensors, etc.) increases design flexibility and enhances performance.	LFBGA496	14 x 14 mm
NXP 2.5G RF SiP UAA3588E Quad-band GSM/GPRS/EDGE transceiver suited for Class 12 operation. Fully integrated Tx baluns, loop filter, and decoupling capacitors, plus Fractional-N RF synthesizer with AFC control option and RF VCO with integrated supply regulator. Semi-integrated reference oscillator with integrated supply regulator. Low-noise and wide dynamic range low-IF receiver.	HVQFN40	6 x 6 mm lead-free
NXP 3G RF SiP UAA3582 Zero-IF (ZIF) W-CDMA transceiver that meets the radio requirements listed in the 3GPP rel 5 specifications. Highly passive SiP includes Tx baluns, loop filter, and decoupling capacitors, Rx channel filters, and Rx/Tx Fractional-N synthesizer with AFC control capability, and RF VCO with integrated supply voltage regulator. Low-noise and wide dynamic range zero-IF receiver and transmitter.	HVQFN40	6 x 6 mm lead-free
NXP power management unit (PMU) PCF50626 Highly integrated PMU for 3G and smartphone applications. Combines power-supply generation, battery management, battery charging, and a touchscreen interface. Delivers a rich feature set, superior power efficiency, and a high level of programmability in a compact package.	HVQFN112	7 x 7 mm

Built-in multimedia chipset

Type number/description	Package	Footprint
NXP Bluetooth 2.0+EDR module BGB210 Highly integrated Bluetooth 2.0 / Enhanced Data Rate (EDR) solution. Operates from a 1.8-V supply and requires only a 50-Ω bandpass filter and a few decoupling capacitors as external components. Offers 21-mW HV3-mode power consumption and 120-μA Sniff at 1.28s current. Coexists with 802.11g. Profiles up to video distribution.	HVQFN40	5 x 5 mm
NXP WLAN 802.11g module BGW211 Complete 802.11g functionality optimized for use in battery-powered handheld devices. Offers industry's lowest standby power consumption (<2 mW) and uses only 150 mm ² for the total 802.11g solution. Coexists with Bluetooth 2.0.	Module	10 x 15 x 1.4 mm
NXP secure NFC transmission module PN65K 80C51-based core with integrated RAM and ROM. Fully supports ISO 18092, MIFARE and FeliCa read/write modes. Handles the host protocols for USB 2.0, I ² C, SPI, and serial UART interfaces.	HVQFN48	7 x 7 x 0.85 mm

Other advanced features

Feature	Description
LifeVibes Video by NXP Software	<ul style="list-style-type: none"> ▶ Video encoder service (VES) ▶ Video player service (VPS)
LifeVibes Voice by NXP Software	<ul style="list-style-type: none"> ▶ Hands Free (full duplex with noise reduction) ▶ Voice Clarity (improved acoustic performance) ▶ Noise Void (background noise cancellation with two microphones)
LifeVibes by NXP Software	<ul style="list-style-type: none"> ▶ Fully JTWI-compliant JAVA platform ▶ DRM 2.0 agent
NXP USB OTG	<ul style="list-style-type: none"> ▶ USB 2.0 full-speed (12 Mbps) device ▶ USB boot ▶ USB single-port changing support ▶ Supports UART-less design ▶ Profiles: CDC (modem), mass storage, firmware upgrade, file system, NAND, NOR, Flash
NXP Mono Interference Cancellation (MIC)	▶ NXP solution for Single-Antenna Interference Cancellation (SAIC)
Multi TA 07.10	▶ Terminal adapter software that connects the solution via AT commands to application engines or the PC, allowing multiple simultaneous data connections.

LifeVibes™ is a trademark of NXP software.

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