

SQN3120 LTE Baseband System-on-Chip for Mobile Devices

Mont Blanc Platform LTE Semiconductor Solution



Slim and powerful

Based on nine years of innovation in 4G technology, SQN3120 is a slim and powerful LTE™ baseband plus applications processor chip at the heart of Sequans' Mont Blanc platform, a member of Sequans' StreamrichLTE™ product family for feature rich, high performance LTE mobile devices. Designed for the highest possible efficiency, either as a standalone 4G solution or alongside a 3G subsystem, SQN3120 Mont Blanc is the industry's most compact and cost-effective solution for adding LTE connectivity to 4G mobile hotspots, CPE, and USB dongle applications.

Highlights

- ❖ 3GPP Release 9
- ❖ FDD and TDD
- ❖ 40 nm CMOS technology
- ❖ 10 x 10 x 1.04 BGA package with embedded LP-DDR SDRAM
- ❖ Integrated applications processor
- ❖ 4G-EZ ultra-low power technology
- ❖ Category 4 throughput 150 Mbps DL / 50 Mbps UL
- ❖ Complete LTE protocol stack and host software
- ❖ GCF compliant

Mont Blanc LTE platform

SQN3120 Mont Blanc is the baseband and applications processor chipset at the heart of Sequans' second generation LTE platform, Mont Blanc, which is highly optimized for CPE, mobile routers, and hostless USB dongles. Mont Blanc includes baseband, applications processor, and RF chips and reference designs, and leverages numerous years of LTE IOT, field trial, and commercial deployment experience.

Applications

A member of Sequans' StreamrichLTE product family, SQN3120 Mont Blanc with its integrated applications processor is designed for feature rich LTE devices such as LTE portable routers, desktop CPE, and hostless USB dongle applications.

Key benefits of SQN3120 Mont Blanc

Industry-leading integration

SQN3120 Mont Blanc comprises an LTE baseband modem, an applications processor, and LP DDR SDRAM in a small 10 x 10 x 1.04 mm BGA package, optimizing both the footprint and the cost of 4G portable routers, CPE, USB dongles, and more.

4G-EZ low power consumption

Leveraging the low power consumption capabilities of Sequans' predecessor WiMAX and LTE technology, SQN3120 delivers 4G-EZ low power consumption technology that supports discontinuous reception (DRX – short and long cycles) modes, allowing best-in-class power consumption.

4G-EZ comprehensive software suite

Sequans' comprehensive 4G-EZ software suite is based on nine years of field-proven experience. It is running in all major deployments around the world, making it one of the most mature software solutions in the global 4G ecosystem. 4G-EZ software includes the entire FDD/TDD LTE software stack

and all drivers and host applications required for a complete 4G system. Host software includes a turnkey package for all major operating systems, including Android, Linux, and Microsoft-based host platforms. Sequans' own connection manager, a seamless 3G/4G handover implementation, a standards-compliant OMA-DM client, a field diagnostic tool, and a manufacturing software tool. The 4G-EZ software suite also provides a full verification environment, which can be easily customized to address specific needs.

OS free

SQN3120 provides a 4G connection to PCs, tablets, MIDs, netbooks and smartphones, without the need of installing drivers.

Supports numerous interfaces

SQN3120 supports a wide variety of interfaces, including SDIO host, USB OTG, and G-MII/Turbo-MII/MII, and audio PCM, for connection to a wide variety of peripherals.

RF flexibility

SQN3120 Mont Blanc supports both FDD and TDD duplexing methods. It supports DigRF v4 and flexible DigIQ interfaces for various LTE bands via various TDD or FDD LTE RF front-ends. SQN3120 interconnects with RF partner Fujitsu's LTE-optimized transceiver, MB86L13A for FDD bands, or with Sequans' own SQN3140 transceiver for all major TDD bands.

Integrates with Sequans' SQN3140 RFIC for LTE TDD brands

Sequans' companion RF chip, SQN3140, is designed to integrate with SQN3120. SQN3140 comprises a transceiver with embedded converters and low noise amplifiers in a 7 x 7 mm HLA package. [see SQN3140 product brief.]

High throughput

SQN3120 Mont Blanc delivers maximum theoretical throughput and the full line rate in category 4 for all configurations.

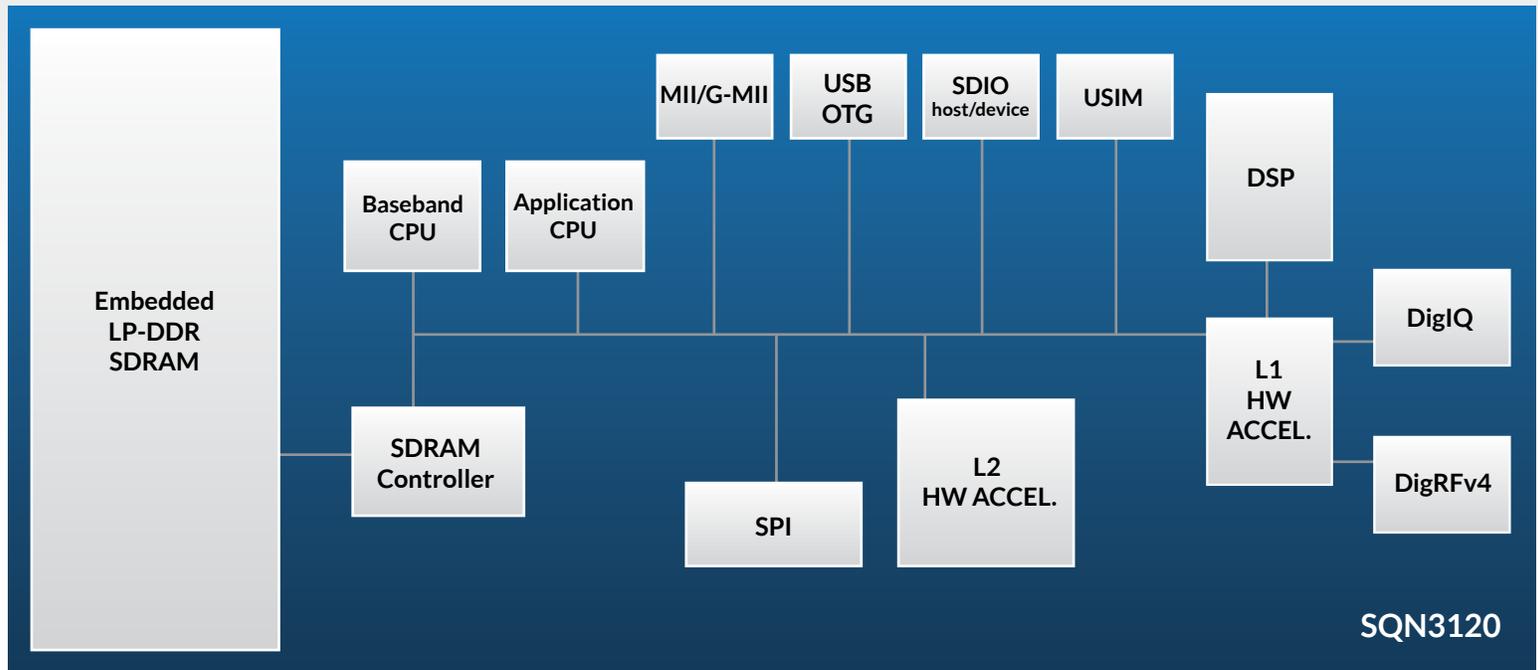
Full-featured 4G MAC layer

The SQN3120's extremely efficient MAC implementation is strategically partitioned between hardware and software to maximize available throughput and reduce power consumption. The software runs on a MIPS processor, providing flexibility, while the MAC hardware acceleration greatly enhances system performance and throughput. Complete support for mobility is provided, including inter/intra handover and idle mode.

stream**RICH**^{LTE}

StreamrichLTE is Sequans' product line for high-end mobile and nomadic devices. StreamrichLTE provides maximum LTE throughput and support for advanced features required for the highest performance smartphones, tablets, and CPE.

SQN3120 block diagram



Product characteristics

Throughput

LTE 150 Mbps DL / 50 Mbps UL

LTE PHY

- ❖ FDD and TDD
- ❖ From 1.4 to 20 MHz bandwidth
- ❖ Cat 4 throughput (FDD = 150 Mbps DL, 50 Mbps UL)
- ❖ All transmission modes (up to TM8 – MIMO beamforming)
- ❖ All DL/UL and special sub-frames configurations
- ❖ Supports 2 Rx antenna, 1 Tx antenna
- ❖ Tx diversity
- ❖ HARQ Chase combining & Incremental redundancy
- ❖ Fast scanning

LTE MAC

- ❖ Hosted/4G-EZ configurations
- ❖ Standard 3GPP security, integrity, ciphering algorithms
- ❖ Intra/Inter-frequency handover, incl. multi-RAT
- ❖ Discontinuous reception (DRX – short and long cycles)
- ❖ Semi-persistent scheduling
- ❖ Advanced QoS features
- ❖ Voice support: dual standby, SRVCC (VoLTE)
- ❖ eMBMS
- ❖ IPv4/v6
- ❖ RoHC

Interfaces

- ❖ SDIO host/device
- ❖ USB 2.0 OTG host/device with integrated transceiver
- ❖ G-MII/Turbo-MII/MII
- ❖ USIM
- ❖ DigIQ
- ❖ DigRFv4
- ❖ PCM (audio)

Packaging

10 x 10 x 1.04 mm BGA package (LP-DDR SDRAM embedded)