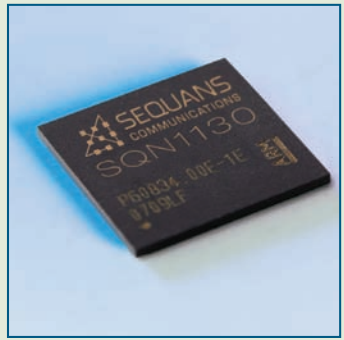
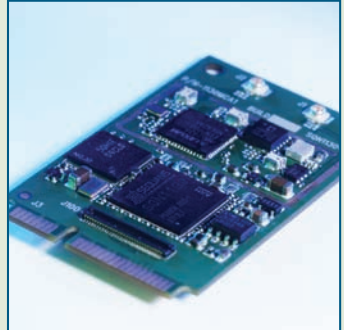


### SQN1130 A GENERATION AHEAD

- SUPERIOR RECEIVER SENSITIVITY
- FULL 2X2 MIMO (2Tx/2Rx)
- HIGHEST PERFORMANCE  
MAXIMUM LIKELIHOOD DECODER
- *mimoMAX*™ PATENTED TECHNOLOGY
- HIGH THROUGHPUT >30 MBPS
- LOW POWER < 280mW



# SQN1130 SETTING THE STANDARD



PCI-e MINI CARD

## SYSTEM-ON-CHIP FOR WiMAX MOBILE STATIONS

Sequans' SQN1130 system-on-chip (SoC) is the industry's lowest power, highest throughput solution for manufacturers of WiMAX mobile stations. The SQN1130 is an advanced baseband chip based on the IEEE 802.16e standard, implementing MIMO plus all MAC and PHY features required for WiMAX Forum™ Wave 2 certification. It is delivered with Sequans Software Solution, S-Cube, a comprehensive and flexible software package.

## THE SOLUTION FOR EVERY APPLICATION

The SQN1130 delivers wireless broadband connectivity for fully mobile WiMAX applications as well as for portable, nomadic, and fixed applications. Its low power consumption enables it to fit into the smallest of mobile devices such as mobile handsets, smartphones, and PDAs. It is also suitable for fixed devices such as desktop modems and residential gateways, and portable devices such as PC cards, ExpressCards, PCI Express mini-cards, USB dongles, and SDIO modules.

- **Total solution**  
Sequans' SQN1130 enables the delivery of wireless broadband services directly to the fully mobile end user. It provides manufacturers with a full-fledged, self-contained WiMAX access solution and a solid foundation for the development of high performing, low power-consuming WiMAX mobile and fixed terminals.
- **Advanced MIMO**  
SQN1130 implements a unique, patent-pending, low-complexity MIMO algorithm that delivers the highest theoretical performance possible, while minimizing power consumption.
- **Low power**  
SQN1130 fits into a small and thin VFBGA package and uses power optimization techniques to deliver an integrated solution that is high performing, yet small in size, low-cost, and low power.
- **Full-featured MAC layer**  
SQN1130's extremely efficient MAC implementation is strategically partitioned between hardware and software to maximize available throughput and reduce power consumption. The software runs on an ARM9 processor, providing flexibility, while the MAC hardware acceleration greatly enhances system performance and throughput. Complete support for mobility is provided, including handover, sleep mode, and idle mode.



## PRODUCT CHARACTERISTICS

### Packaging

- The SQN1130 fits in an 11 x 11 x 1 mm VFBGA-256 package

### Power consumption

- 280 mW in regular operating mode
- < 10 mW in idle mode

### Throughput

- > 30 Mbps

### PHY

- S-OFDMA PHY with 512 and 1024-point FFT
- Supports 2 Rx antennas and 2 Tx antennas
- MIMO: Matrix A + MRC, Matrix B, collaborative MIMO
- TDD with a configurable UL/DL split
- Adaptive QPSK, 16QAM and 64QAM modulation
- Fast feedback channel
- H-ARQ
- Fast scanning
- Analog IQ interfaces with integrated A/D and D/A converters

### MAC

- Layer-2 packet forwarding
- AES-CCM encryption
- PKMv2 privacy protocol
- Real-time services
- Concatenation, fragmentation, packing
- Automatic repeat request (ARQ)
- Payload header suppression (PHS)
- Advanced QoS features
- Optimized handover
- Sleep mode
- Idle mode

### Data interfaces

- MII
- SDIO
- USB 2.0

### Other Interfaces

- SIM
- SPI

### Rich, flexible software

The Sequans Software Solution, S-Cube, not only provides a full IEEE 802.16e software stack, but also hardware drivers, THP protocol to interface with host CPUs, application software, and a full simulation and verification environment. S-Cube provides everything required for developing WiMAX devices and can be easily customized to address specific needs.

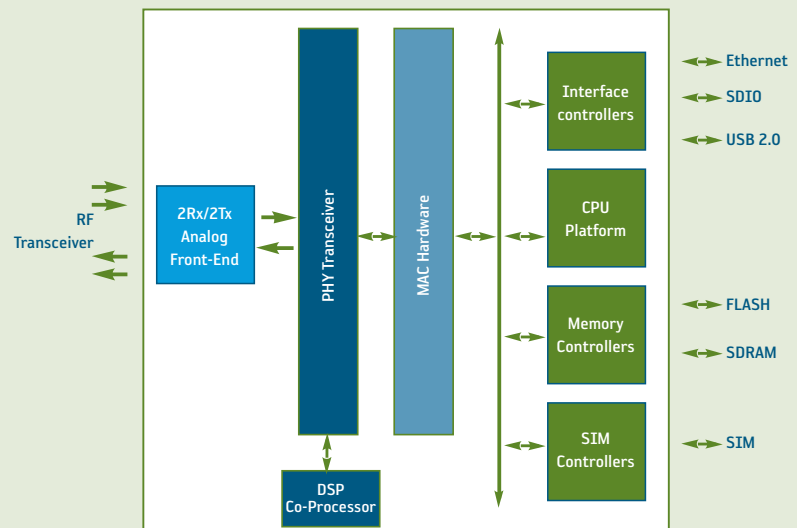
- For embedded devices, no development is required on the SQN1130. Host drivers are provided for all main operating systems, and a protocol is provided to exchange data and commands between the host and the SQN1130.
- For standalone devices, customer-specific software can be added to S-Cube easily, using well-defined API.

### RF support

The SQN1130 is RF-independent and designed to integrate with solutions from the leading RF suppliers to give manufacturers maximum flexibility to address opportunities in virtually any frequency band around the world. Sequans has developed close partnerships with Analog Devices, AsicAhead, NXP, Maxim and Sierra Monolithics.

### Reference designs

Sequans provides evaluation boards, implementing a full WiMAX baseband and interfacing with a separate RF board from Maxim, with full RF drivers provided. In addition, Sequans has designed a full ExpressCard34 based on the SQN1130, and will deliver other designs such as an SDIO module. Reference designs are provided to leading ODMs and module vendors, to deliver a wide array of device types, addressing all segments of the market. Sequans partners with WiMAX test equipment vendors to provide ODMs and OEMs access to ready-to-go test equipment, which allows for large test coverage and quick calibration, testing, and integration in a factory environment.



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