

## CMX975

### RF Building Block

### 2.7GHz Up/Down-converter, LNA, Dual PLL + VCO

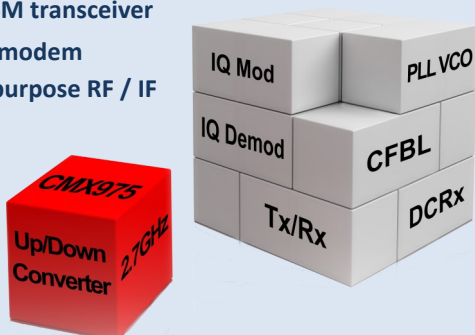
The CMX975 is an RF building block IC that provides multiple functions comprising: RF PLL/VCO, IF PLL/VCO, Transmit Up-convert mixer, Rx Down-convert mixer and LNA.

#### Features

- **1 - 2.7 GHz Up/Down-converter**  
Configurable image reject or normal mode Rx mixer  
Configurable sideband suppression or normal mode Tx mixer  
Combine with CMX973 to implement RF-to-I/Q transceiver
- **Integrated LNA**  
1.7dB noise figure at 1.5GHz  
18dB programmable gain range
- **RF synthesiser/PLL**  
Fractional-N 24-bit divider  
Output range 338MHz - 3.6GHz  
Programmable output divider  
Fast lock function  
Programmable charge pump current  
-212dBc/Hz normalised phase noise
- **IF synthesiser/PLL**  
Integer-N 14-bit divider  
Output range 31MHz - 1GHz  
Programmable output divider
- **Integrated low noise LDO regulator**
- **Single 2.7V to 3.6V supply**
- **1.8V digital interface supported**
- **C-BUS configurable**
- **-40° to +85° operating temp. range**
- **Small footprint VQFN package (6mm x 6mm)**

#### Applications

- L-Band / S-Band Satcoms
- Military radio
- Wireless microphone
- 2.4GHz ISM transceiver
- Wireless modem
- General purpose RF / IF

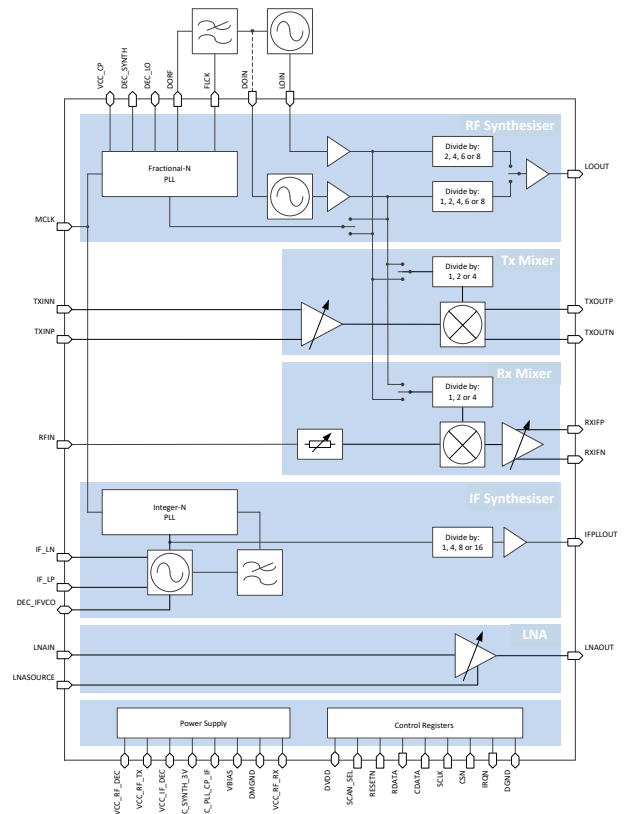


The RF high frequency synthesiser employs a Fractional-N design and will operate at up to 3.6GHz using a fully-integrated internal VCO or at up to 6GHz with an external frequency source.

The IF synthesiser employs an integer-N design and will operate at up to 1GHz. It has an integrated VCO requiring only an external inductor to set the frequency. Internal dividers and buffers are provided for each synthesiser/PLL allowing a wide range of frequency generation options.

The Rx mixer can be configured in image reject or normal mode and the Tx mixer can be configured in sideband suppression or normal mode. The integrated LNA offers 18dB of gain reduction in three steps of 6dB.

The CMX975 has been designed to work with CML's CMX973 Quadrature Modulator/Demodulator to provide a simple and cost effective high frequency superhet transceiver operating in the range 1 to 2.7 GHz.



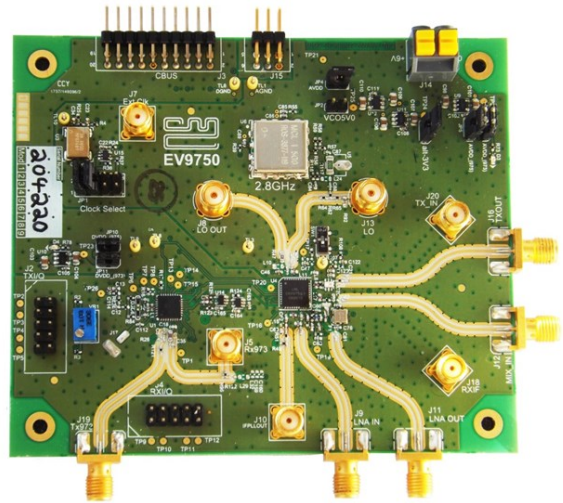
CMX975Q4 Block Diagram

## Evaluation Kit

The EV9750 is an evaluation platform for the CMX975 and incorporates a CMX973 (RF I/Q Transceiver IC) to allow conversion to and from the CMX975 IF frequencies to I/Q baseband signals. Together these provide a cost effective RF transceiver function for operation in the range 1 - 2.7 GHz.

The board includes all necessary voltage regulators and operates from an external 6V dc supply. The EV9750 provides a 38.4MHz reference oscillator together with an additional off-chip VCO module. External frequency sources can also be configured to provide local oscillator signals for the CMX975 mixers.

The EV9750 interfaces to the PE0003 Universal Interface Card, to allow read and write access to the CMX975 and CMX973 C-BUS registers. A PC user interface is available for operational set-up and provides for use of control scripts



EV9750 Evaluation Kit



Small outline 6mm x 6mm VQFN package

## Documentation

### Website

- Product Preview
- Datasheet
- Evaluation Kit User manual

## Ordering Information

- CMX975Q4 - 2.7GHz Up/Down-converter
- EV9750 - CMX975 Evaluation Kit



## WHAT TO DO NEXT

Visit: [www.cmlmicro.com](http://www.cmlmicro.com)

Find: [Distributor](#)

## CML Microcircuits Benefits

### Faster time to market

Developing proven high performance and field tested ASSP ICs, CML is helping engineers to cope with increasing pressure in delivering shorter project design cycles.

### Design flexibility

CML's FirmASIC® reconfigurable technology with the use of a Function Image upload enables a single hardware platform to be used for multiple communications systems.

### High Quality

With 100% of products being tested before shipping, customers are assured of the highest reliability.

### Product Longevity

Designing with CML products, manufacturers are rewarded with longer product life cycles and a stable BOM, ensuring minimum engineering costs and maximum profit.

### Low Power

Being at the forefront of low power chip technology, manufacturers can develop smaller equipment with extended battery life.

### Superior Support

Internal and field based applications teams worldwide provide focused customer support to ease the development process.