QUALCOMM
CDMA Technologies
Enabling the Future of Communications.™

CSM5000 ™

Receive Samples

CSM5000

Rx 0 | Rx 1 | • • • | Rx 31

Tx 0 | Tx 1 | • • • | Tx 63

Transmit Chain Inputs

Tx Sector 0 | Tx Sector 1 | • • • | Tx Sector 5

Transmit Outputs
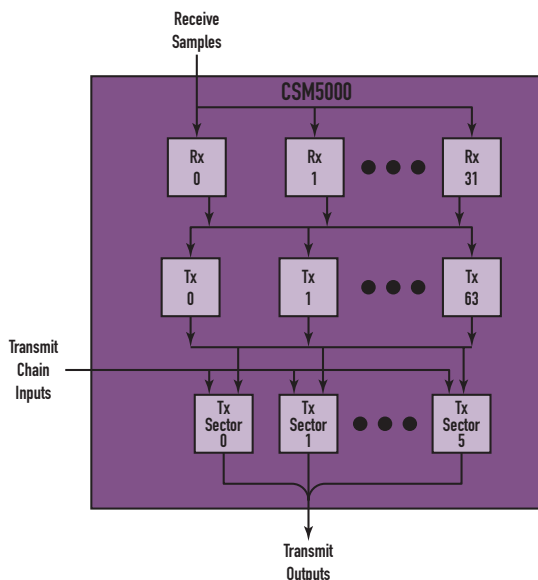
OVERVIEW

QUALCOMM's CSM5000 Cell Site Modem (CSM™) device is a CDMA digital baseband modem for infrastructure and test equipment with support for IS-95A, IS-95B and 3G CDMA 1xMC, the third-generation air interface standard based on TR45.5. The CSM5000 device provides an increase of up to two times the overall capacity and facilitates faster time to market for new higher data rate services and IS-2000-based technologies. With initial data rates that exceed the ITU requirement for full wide-area mobility, the CSM5000 device will support data rates up to 307.2 kilobits per second (kbps), giving manufactures worldwide the abilitiy to develop products that provide voice, high-speed data and video over wireless networks. Network operators will also benefit from the cost efficiencies, capacity enhancements and the rapid time to market that the CSM5000 device delivers for next-generation services.

QUALCOMM provides a seamless migration path that allows operators to move easily to the next generation of wireless communications. This path supports compatibility between IS-95A, IS-95B and 3G CDMA 1xMC networks. Manufacturers benefit by deploying CSM5000-based networks through shorter product development times, reduced development and equipment cost, and by reuse of hardware, software and network protocols.

The CSM5000 device supports 3G CDMA 1xMC. A future CSM will be developed to support 3G CDMA 3xMC.

The CSM5000 device supports up to 32 simultaneous users, a four-fold increase over previous generation CSM devices. This flexible architecture provides resource mapping of up to 64 Forward Link channels and 32 Reverse Link channels. QUALCOMM's ▶

FEATURES

- 3G CDMA 1xMC Support: The CSM5000 device supports 3G CDMA 1xMC Radio Configurations one through five on the Forward Link and one through four on the Reverse Link.
- Six-Sector Support: The CSM5000 device increases the number of sectors supported from three to six, with support for six transmit antennae and up to 12 receive antennae.
- Orthogonal Transmit Diversity Support: The CSM5000 device can support three sectors with Orthogonal Transmit Diversity (OTD).
- Increased Cell Radius: The CSM5000 device can accommodate cell radii of up to 125 km.
- Turbo Code Support: The CSM5000 device allows Turbo codes or convolutional codes to be selected on a per-channel basis.
- Fast Power Control: The CSM5000 device supports 800 Hz power control on both the Forward and Reverse Links.
- Quick Paging Channel: The CSM5000 device can transmit a Quick Paging Channel on the Forward Link. The Quick Paging Channel increases the amount of time a mobile unit can stay asleep while in ▶

CELL SITE MODEM

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OVERVIEW (continued)

previous generations of CSM devices include theCSM2000™ device, which provides support for eight Forward and eight Reverse Link IS-95B channels, and the CSM1.0™ and CSM1.5™ devices, which each provide one Forward and one Reverse Link IS-95B channel. Each channel element performs CDMA searching, CDMA modulation, CDMA demodulation, and Viterbi and Turbo decoding.

The CSM5000 device is used by QUALCOMM's CDMA licensees to build 3G CDMA 1xMC compliant systems capable of supporting up to 307.2 kbps data rates. The CSM5000 device also represents a new modem architecture for the CSM device family, enabling increased integration while reducing host processor loading and power consumption.
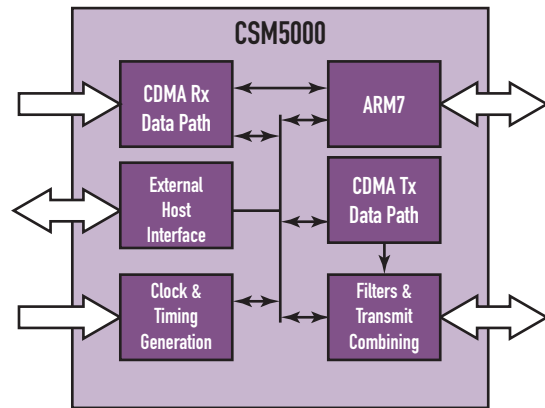
FEATURES (continued)

Slotted Paging mode, thereby improving standby time of the mobile unit.
- Integrated RISC Processor: The CSM5000 device includes an ARM7TDMI™ processor which is used for many of the low-level Reverse Link tasks, including searching, multi-

path tracking and finger assignment, and frame rate determination. This significantly reduces the load on the host processor.
- Device Drivers: Device-driver software for the CSM5000 device is also available from QUALCOMM. The device-

driver software runs on the host processor and abstracts the low-level hardware details from the upper-layer CDMA applications. The software provides the following functions: download microprocessor firmware; run CSM5000 self-test functions;

CSM5000 timing management; sector management; and drivers for Pilot, Sync, Paging, Access, and Forward and Reverse Link Traffic Channels.
- 3.0 V - 3.3 V I/O, 2.5 V core.
- 352-pin Ball Grid Array package.