INTRINSYC

i-RIL and i-MUX Telephony Stack

i-RIL and i-MUX for Microsoft's Windows Mobile

Wireless Handheld Development Tools

:: Overview

Intrinsyc Software's i-RIL and i-MUX middleware products reduce the time required to develop a mobile embedded device utilizing Microsoft's Windows Mobile Software for Pocket PC or Smartphone and a GSM/GPRS modem. i-RIL provides developers with a common hardware abstraction layer and the i-MUX provides improved performance on single interface modems

:: i-RIL

i-RIL is a customized layer of software code that operates with Microsoft's Cellcore telephony stack, which is part of the Widows Mobile Software for Pocket PC and Windows Software for SmartPhone platforms, and is pre-configured to interface with a variety of wireless GSM/GPRS or CDMA2000 modems. To facilitate this process, a user customizable device driver is provided to accommodate hardware and configuration functions in your particular product.
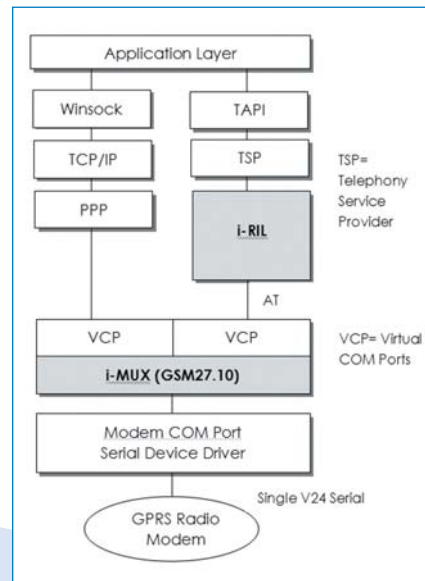
:: i-MUX

i-MUX is a powerful unique software layer that creates a number virtual COM ports that enable multiple simultaneous streams of voice and data between your wireless modem and your applications. For example, this allows you to receive SMS notifications or signal strength indications while using the modem as a voice phone.

:: i-RIL Specifications

The i-RIL is split into two separate components, an i-RIL driver which processes AT commands, and a RIL proxy which performs arbitration between the multiple clients for access to the single RIL driver.

Listed below is a summary of the features implemented by the i-RIL API:
- Network services operator selection, signal status, available operators, etc.
- Call control dial, hang-up, hold, transfer, etc.
- Supplemental services call waiting, call forwarding, call meter, etc.
- SMS send, receive, SMSC selection, etc.
- Data connection virtual serial port, bearer service types, transparent data/online mode change

---

Available modems

The i-RIL and the i-MUX are currently available for a number of industry standard modems including:
- Siemens MC35/34/45
- TTPCOM GSM/GPRS Protocol Stack
- Ubinetics GM400/404/405
- Infineon Opus 1 (iPAQ variant)
- Nokia Card Phone 2.0
- Optimay Radio Stack
- Agere Trident II chipset

Intrinsyc Software Services

Intrinsyc Software are experts in mobile software integration and offers a wide range of professional services for customization and implementation of our telephony technologies to enable you to deliver your specific handheld solution to market quickly.

Customizable modems

If you require a modem that is not listed Intrinsyc can customize the i-RIL and i-MUX to your modem specifications.
- Reduce time-to-market by up to 6 months with customized and flexible software modules ready to implement
- Reduce the cost and risk of implementing and testing unfamiliar modem technologies
- Develop competitive products with heightened functionality

INTRINSYC

i-RIL Specifications *continued*

- Security functions locking, unlocking, passwords, etc.
- Interface functions initialization, notification registration, etc.
- Phonebook functions accessing the SIM phonebooks
- SIM SMS functions accessing SMS messages from the SIM
- GPRS functions selecting profiles, attaching, activating, etc.
- HSCSD functions managing channel allocations
- record access individual files on the SIM
- SIM toolkit 2.0 support engaging in a SIM toolkit session

Package Includes

Each modem configuration ships with:

- Binary Code and/or Source Code (Intrinsyc Software can only ship the source code of the i-RIL to companies that have signed Microsoft's Windows Mobile agreements)
- Run-Time Licenses
- Support - Bronze Level
- Reference and Technical Documentation

i-MUX Specifications

The multiplexer is a standard Windows CE device driver which provides two or more virtual COM port interfaces for a single modem serial port. It uses a packet switching mechanism as defined in the GSM 27.10 specification.

Listed below is a summary of the features implemented by the multiplexer device driver:

- GSM27.10 basic operating mode
- GSM27.10 advanced operating mode
- Support for all GSM27.10 packet types (except for error recovery specific packets)
- GSM27.10 convergence layer 1
- Supports modem flow control signals
- Pass through mode allowing transparent access to the underlying serial driver
- Multiplexer enable and disable API functions to allow packet switching to be turned on and off at will, without effecting the higher software layers.

Software supported by i-RIL and i-MUX

- Windows Mobile 2003 Software for Pocket PC
- Windows Mobile 2003 Software for SmartPhone
- Windows CE .NET (for i-MUX only)

Other products available

Visit www.intrinsyc.com/products

- µPhone - A low-cost customizable telephony solution for wireless handhelds running CE .NET or Pocket PC.
- Mobile Reference Systems - Small, powerful and flexible reference designs ideal for creating a wide range of specialized, intelligent devices. Products include Cerf™ devices such as the CerfPod 270M, CerfPod 255, CerfBoard 255, CerfCube 250 CerfCube 405EP, Cerf IO, and CerfComm.

For more information, visit Intrinsyc Software's website at www.intrinsyc.com
All specifications are subject to change without notice.