GSM Protocol Stack

TST-MUX - Multiplexer adaptation to TST

Developers Description

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0 Document Control

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0.1 Document History

ID	Author	Date	Status	Remarks
8415.xxx.xx.001	RK,MP et al.	Feb. 19, 01	Being Processed	Initial

0.2 References

[GSM 2.30] ETS 300 511: July 1995 (GSM 02.30 version 4.13.0) Man-Machine Interface (MMI) of the Mobile Station (MS), ETSI

[MUX_CNPT] General concept proposed by MP (gpf_muxdrv_cnpt.doc)

0.3 Abbreviations

ACI	Application Control Interface (AT Commands)
G23	The Condat implementation of Layers 2 and 3 of the GSM Protocol Stack
G23 Target System	Hardware which executes G23
LCD	Liquid Crystal Display
MM	Mobility Management
MMI	Man Machine Interface
MOC	Mobile Originated Call
MTC	Mobile Terminated Call
PC	Personal Computer
PCO	Point of Control and Observation
PIN	Personal Identification Number
RS232	Serial Communication Standard
Target System	Shortened form of 'G23 Target System'

0.4 Terms

Entity	Program which executes the functions of a layer
Message	A message is a data unit which is transferred between the entities of the same layer (peer-to-peer) of the mobile and infrastructure side. Message is used as a synonym to protocol data unit (PDU). A message may contain several information elements.
Primitive	A primitive is a data unit which is transferred between layers on one component (mobile station or infrastructure). The primitive has an operation code which identifies the primitive and its parameters.
Service Access Point	A Service Access Point is a data interface between two layers on one component (mobile station or infrastructure).

1 Overview:

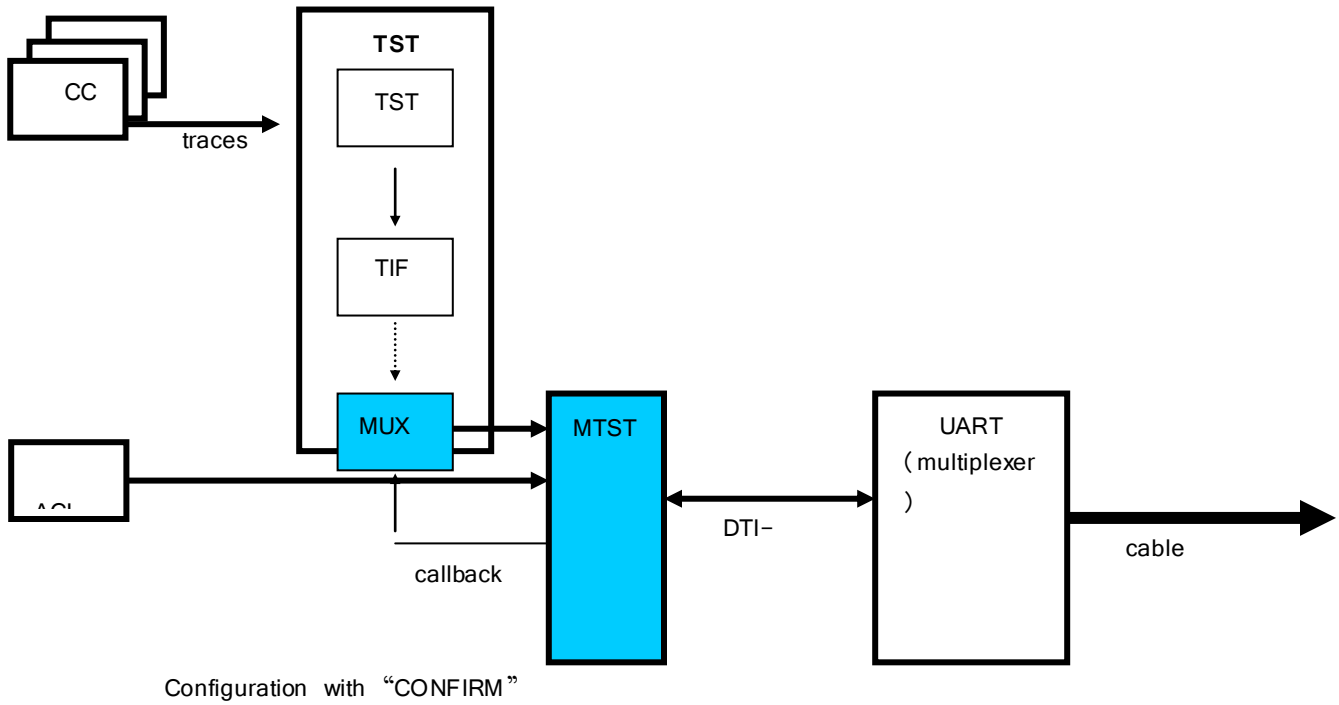
To use the new UART entity (with multiplexing functionality) for the test interface a new driver had to be created. This driver will be inserted in the test interface driver configuration table instead of the SER driver which currently is responsible for the access of the RS232 chip. It communicates with UART using the DTI-SAP-interface.

This documentation is dedicated to interested developers.

2 Solution

2.1 General overview

The following flow chart should clarify the general procedure:

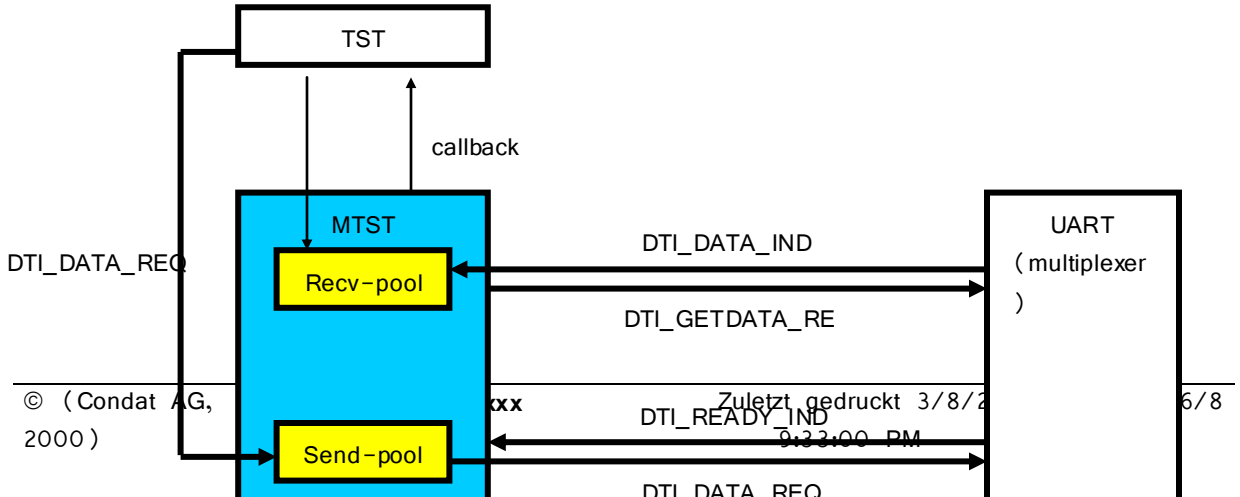


Configuration with "CONFIRM"

Communication via primitives

Function calls

The next chart shows the communication between MTST and UART in detail:



2.2 Connection/Disconnection with/from UART

To connect the MTST-entity with the UART-entity a special AT-command has to be sent to ACI:

"AT%TRC=1"

This will result in sending a CONFIG-primitive to MTST of this form:

"CONFIG {<partner-entity> <tui> <c_id> | STOP}"

- <partner-entity> ... e.g. UART
- <tui> ...
- <c_id> ...
- STOP ... used for disconnecting

After this UART and MTST will communicate using the DTI interface as described before.

3 Known problems and future tasks

3.1 Known bugs

3.2 „Nice to have“

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