Teleconnect
Verbindungen in die Zukunft

SOCRATES EVB

SW Release Report

Revision: 1.3, 2015-08-25

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Revision History:

Current Revision: 1.3, 2015-08-25

Revision	Date	Comment
1.2	21-Apr-15	Delivery of release 1.2, Rev. 743
1.3	25-Aug-15	Delivery of release 1.3, Rev. 832

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1 Release

1.1 Scope and Purpose

This document is a release report for the software package „SocMsgHandler“. The software provides functions for operating a SHDSL CO and CPE.

1.2 Issue Control

Issue	Date	Reason for Changes
1.2	2015-04-20	Update for Release 1.2
1.3	2015-08-25	Update for Release 1.3

Table 1: Revision History

1.3 Glossary and Abbreviations

CH
: Channel

CO
: Central Office

CPE
: Customer Premise Equipment

Cu
: Cuprum, engl. Copper

EFM
: Ethernet First Mile

EVB
: Evaluation Board

FW
: Firmware

INM
: Idle Noise Measurement

kbps
: kilobit per second

LT
: Line termination

NT
: Network termination

PMMS
: LinPMMe Probing

PSD
: power spectral density

SHDSL
: Single-Pair High-Speed Digital Subscriber Line

STU-C
: SHDSL Termination Unit Central Side

STU-R
: SHDSL Termination Unit Remote Side

SW
: Software ,

TC-PAM
: Trellis-Coded Pulse Amplitude Modulation

1.4 Features of SW

The SW “SocMsgHandler” realizes for SOCRATES Evalboard (EVB) following functionality:

- Adjust the line rate with enabled line probing (PMMS) for rate adaptation,
- Select several fixed line rates (see SOCRATES EVB Quick Start Guide(Teleconnect GmbH, shdsl@teleconnect.de, 2015)),
- Support for EFM-CU (802.3ah(IEEE, 2008-12-26) – EFM on Cu),
- Line coding: 16 and 32 TC-PAM according to ITU-T G.991.2 (ITU, 12/2003),
- Extended Rates Configuration (min rate: 64kbps; max rate: 15296kbps) incl. support of add. extended TC-PAM levels 4, 8, 64 and 128;
- Monitoring of basic SHDSL line parameters,
- Test modes: Loopback at line interface, PSD test, Idle lock/ Silent State (INM, used for measurements the electrical characteristics (ETSI, 2005-02)),
- Enable/Disable a PMD channel,
- Support unit modes STU-R / CPE and STU-C / CO mode,
- Used DSL configuration: Annex B, Mode Terminator,
- Automatically Restart of SHDSL line in CO mode,
- Change of HW Configuration during runtime with SHDSL Restart.

More additional information are described in document SOCRATES EVB Quick Start Guide (Teleconnect GmbH, shdsl@teleconnect.de, 2015). This document also includes commissioning, FW download and SHDSL startup.

1.5 Used Lantiq sources

Sources/Firmware	Version	Notes
drv_soc4e	0.3.8.1	Socrates device driver (2012-05-10)
PHY firmware	shdsl_soc4e_cot_rt_elp_192__001	SHDSL PHY Firmware Version 1.1-1.9.2__001 (2015-07-31)
IDC firmware	IDC_Online_v1.1_1.9.2	SHDSL IDC Firmware Version 1.1_1.9.2 (2015-07-31)

Table 2: Used Lantiq SHDSL sources and firmware versions

1.6 Changes of Release 1.3 in comparison to previous Release 1.2

The Release 1.3 enhances previous Release 1.2 with new features and enhancements. The prominent features which are included in this release are:

- Possibility to change the Hardware configuration during the runtime of software without pressing Reset button,
- Lantiq Firmware update: SHDSL PHY Firmware version 1.1-1.9.2__001,
- Lantiq Firmware update: SHDSL IDC Firmware version 1.1_1.9.2,
- Improvement at usage of Line Probing (PMMS) at extended rates configuration,
- Add special SHDSL debug features,
- Optimizations of SHDSL processing.

2 Short test results

TC	Function	Remark	State
1	Single line EFM with Standard Rate 5696kbps	Test at SHDSL-EVB #1 (LT/CO) ⇔ SHDSL-EVB #2 (NT/CPE)	Tested
2	Single line EFM with Ext. Rate 15296kbps	Test at SHDSL-EVB #1 (LT/CO) ⇔ SHDSL-EVB #2 (NT/CPE)	Tested
3	Single line EFM with Ext. Rate 64kbps	Test at SHDSL-EVB #1 (LT/CO) ⇔ SHDSL-EVB #2 (NT/CPE)	Tested
4	Traffic 5Mbps, Packets: UDP, 64 Bytes	Test at SHDSL-EVB #1 (LT/CO) ⇔ SHDSL-EVB #2 (NT/CPE)	Tested
5	Traffic 5Mbps, Packets: UDP, 1518 Bytes	Test at SHDSL-EVB #1 (LT/CO) ⇔ SHDSL-EVB #2 (NT/CPE)	Tested
6	Traffic 15Mbps, Packets: UDP, 64 Bytes	Test at SHDSL-EVB #1 (LT/CO) ⇔ SHDSL-EVB #2 (NT/CPE)	Tested
7	Traffic 15Mbps, Packets: UDP, 1518 Bytes	Test at SHDSL-EVB #1 (LT/CO) ⇔ SHDSL-EVB #2 (NT/CPE)	Tested

Table 3: Short test results

Following devices / DUT was used:

- SHDSL-EVB #1:
  - SW-Version: 1.3 (Rev: 832)
  - Serial number: 0123.6CA8.6638.9C8F
- SHDSL-EVB #2:
  - SW-Version: 1.3 (Rev: 832)
  - Serial number: 0123.24D0.1288.3E1B

3 Literature

[1] Teleconnect GmbH, shdsl@teleconnect.de, "SOCRATES EVB Quick Start Guide," Teleconnect GmbH, Dresden, Germany, 2015.

[2] IEEE, "IEEE Std. 802.3-2008, Section 5: Part 3: Carrier Sense Multiple Access with Collision Detection (CSMA/CD) access method and Physical Layer specifications," 2008-12-26.

[3] ITU, "ITU-T G.991.2: Single-pair high-speed digital subscriber line (SHDSL) transceivers," 12/2003.

[4] ETSI, "ETSI TS 101 524 - V1.3.1: Transmission and Multiplexing (TM); Access transmission system on metallic access cables; Symmetric single pair high bitrate Digital Subscriber Line (SDSL)," 2005-02.

[5] ITU, "ITU-T G.994.1: Handshake procedures for digital subscriber line transceivers," 06/2012.

[6] ETSI, "ETSI TS 101 524 - V1.2.1: Transmission and Multiplexing (TM); Access transmission system on metallic access cables; Symmetric single pair high bitrate Digital Subscriber Line (SDSL)," 03/2003.