Power Consumption Evaluation Code Memo

Contents:

1 Function Description

This source code is used to evaluate the power consumption of CetiBox H3, MCU part, bus communication. It includes CAN, LIN, FlexRay bus communication, full bus-load as possible as.

CAN:
There are 2 test mode: one channel communication, all 8 channels communication.
The communication rate is 500K(nominal), 2Mbps(data).
One channel mode, channel 0 keeps transmitting frame, CANvisualizer3 receives.
8 channels mode, channel 0 keeps transmitting frame, channnel 1 receive and internal gateway to channel 2.
channel 2 transmits to channel 3, channel 3 receive and internal gateway to channel 4.
channel 4 transmits to channel 5, channel 5 receive and internal gateway to channel 6 and channel 7.
CANvisualizer 3 connected channel 6 and 7 receives.

LIN:
RLIN2 is as master, RLIN3 is as slave.
Slave return Response when it received Header.
The communication raite is 20Kbps.
There are 2 test patterns: 2 channels communication, 10 channels communication.

FlexRay:
There are 2 nodes in FlexRay cluster.
RH850/F1H is as node 1, RH850/F1KH-D8 is as node 2.
The communication raite is 10Mbps.
There are 3 test mode, 2bytes, 4bytes, 254bytes as different data load.

2 Development Environment

IDE:	CS+ for CC v7.00.00
CC-RH:	v2.00.00
Debugger：	E1

Under Test MCU:	R7F701709
Under Test Device	CetiBox H3

Assistant Devices

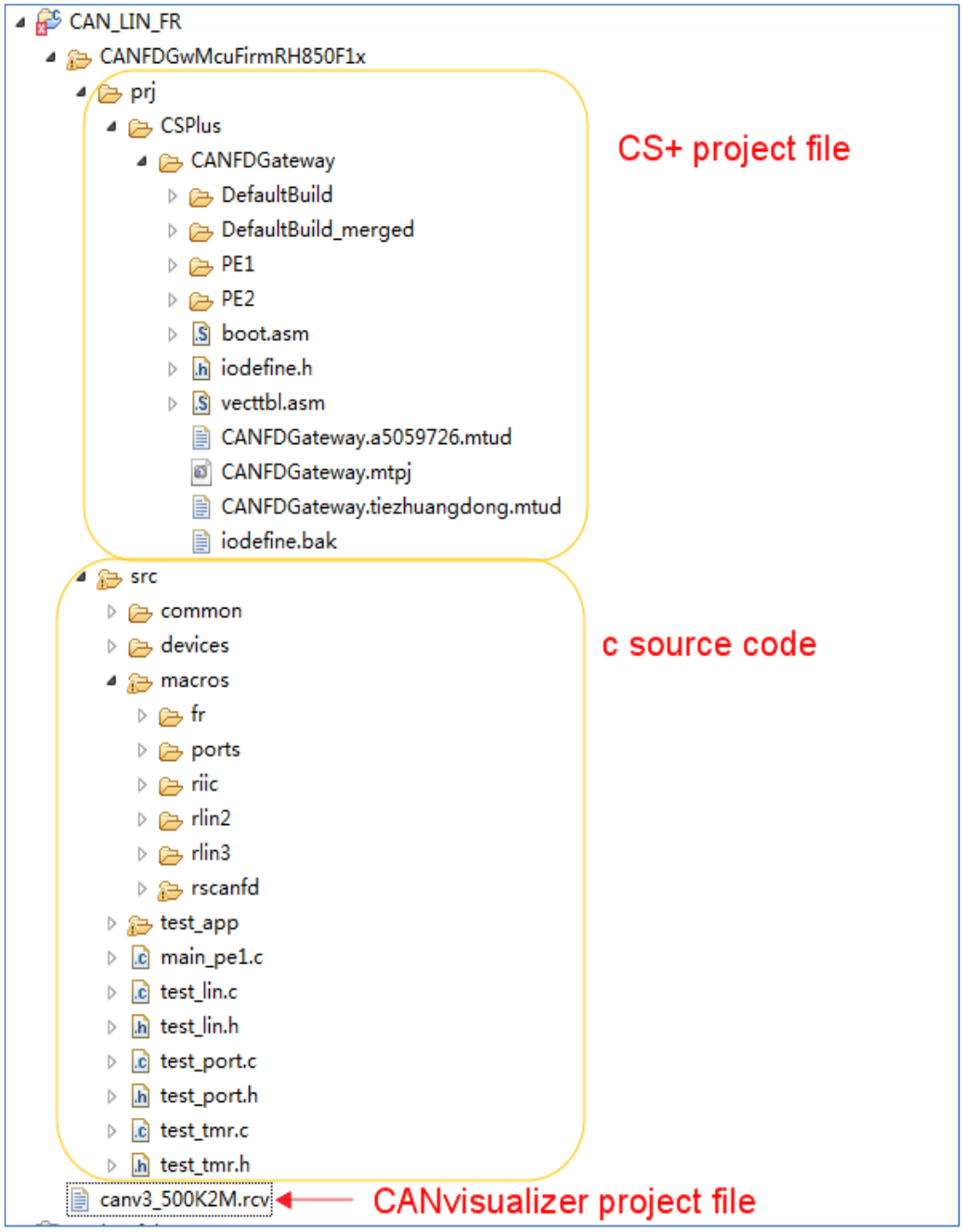
Assistant MCU:	RH850/F1H (R7F7015273)
Assistant board:	RH850/F1x FPGA board and RH850/F1x CPU board

CANvisualizer3　　*2sets

3 Project Folder structure

The project refers GHS project from REE.

rh850g3k-f1kh-d8_rscanfd_rlin3_rlin2_fr.zip



4 Connection

A. CAN part

RSCFD Channel 0(marked with channel 4 in cable) connected with channel 1(marked with channel 5 in cable)

RSCFD Channel 2(marked with channel 6 in cable) connected with channel 3(marked with channel 7 in cable)

RSCFD Channel 4(marked with channel 8 in cable) connected with channel 5(marked with channel 9 in cable)

CANvisualizer CH0 --- RSCFD CHANNEL 6(marked with channel 10 in cable)

CANvisualizer CH1 --- RSCFD CHANNEL 7(marked with channel 11 in cable)

CANvisualizer3 settings refer file "canv3_500K2M.rcv".

Receive Rule Setting:

CH1 gateway -> CH2
CH3 gateway -> CH4
CH5 gateway -> CH6, CH7

B. FlexRay part

FlexRay BP-CHA, BM-CHA
FlexRay BP-CHA, BM-CHA
GND

C. LIN part

Connect the cable by DB9 line:
LIN0 DB9-7(RLIN21) to LIN2 DB9-5(RLIN30)
LIN1 DB9-7(RLIN22) to LIN2 DB9-9(RLIN31)
LIN2 DB9-1(RLIN27) to LIN2 DB9-8(RLIN32)
LIN2 DB9-2(RLIN28) to LIN2 DB9-7(RLIN33)
LIN2 DB9-4(RLIN29) to LIN2 DB9-6(RLIN34)

5 Settings

CAN, LIN, FlexRay function evaluation can be Enabled/Disabled by below macro in file "asmn.c".

TEST_RSCFD	is for CAN.
TEST_FR	is for FlexRay.
POWER_TEST_RLIN_1_BUS	is for LIN.

A. CAN part

In file "cetic_eva_setting.h", modify below macro to decide different test mode.

EVA_CETIBOX_PWR_CONSUMPTION_MODE

B. FlexRay part

In file "map_fr.h", modify below macro to decide different test mode.

FLX_CURRENT_TEST_MODE

Note:

This parameter should be modified at the same time as for node 1 and node 2.

C. LIN part

In file "testlin.h", modify below macro to decide different test mode.

ACTIVATE_LIN_BUS_NUM

6 Refers

Refer file "TestSpecification_20180927.xlsx" for test specification in details if necessary.