AnalogSet_Generation_Issue with SOC_tml

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CONFIDENTIAL

PRELIMINARY

Analog resource assignment

ADVANTEST

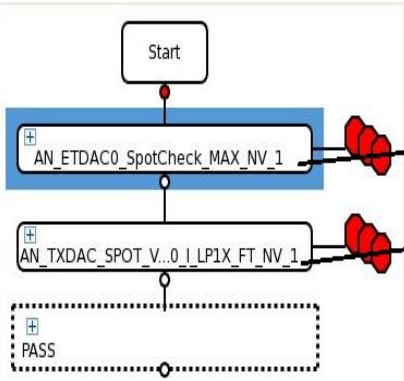
2 Analog pins (etdac_iq & txdac_iq) are connecting to the same digitizer units with different pogo pin: (*X*+ or *X*-) *and* (*XX*+ or *XX*-).

	Name	No	Type	HW	Comment	Tester Channel													
						Site 1			Site 2			Site 3			Site 4			Site 5	
						Pogo	Pad	Unit	Pogo	Pad ▵	Unit	Pogo	Pad	Unit	Pogo	Pad	Unit	Pogo	Pa
1	etdac_iq-		o	MCE		23101	S1	8	23105	S1	6	23107	S1	5	22805	S1	6	22801	S1
2	etdac_iq+		o	MCE		23102	S1	8	23106	S1	6	23108	S1	5	22806	S1	6	22802	S1
3	txdac_iq-		o	MCE		22815	S1	5	22809	S1	8	23109	S1	8	22811	S2	3	22813	S2
4	txdac_iq+		o	MCE		22816	S1	5	22810	S1	8	23110	S1	8	22812	S2	3	22814	S2
5	bbrx_iq-		i	MCE		23113	S2	2	23113	S2	2	23113	S2	2	23113	S2	2	23113	S2
6	bbrx_iq+		i	MCE		23114	S2	2	23114	S2	2	23114	S2	2	23114	S2	2	23114	S2
7	gpsadc_iq+		i	MCE		23116	S2	1	23116	S2	1	23116	S2	1	23116	S2	1	23116	S2

For example, site 1 etdac_iq share the same digitizer unit 8 with site 3 txdac_iq.

There are 2 similar test (SpotCheck) for ETDAC and TXDAC, which are using the same digitizer unit, they will need to create different sequencer for ETDAC and TXDAC, currently SOC_tml cannot differentiate it, it will generate the same sequencer for both, which cause problem during production running.

TestSuits



type filter text

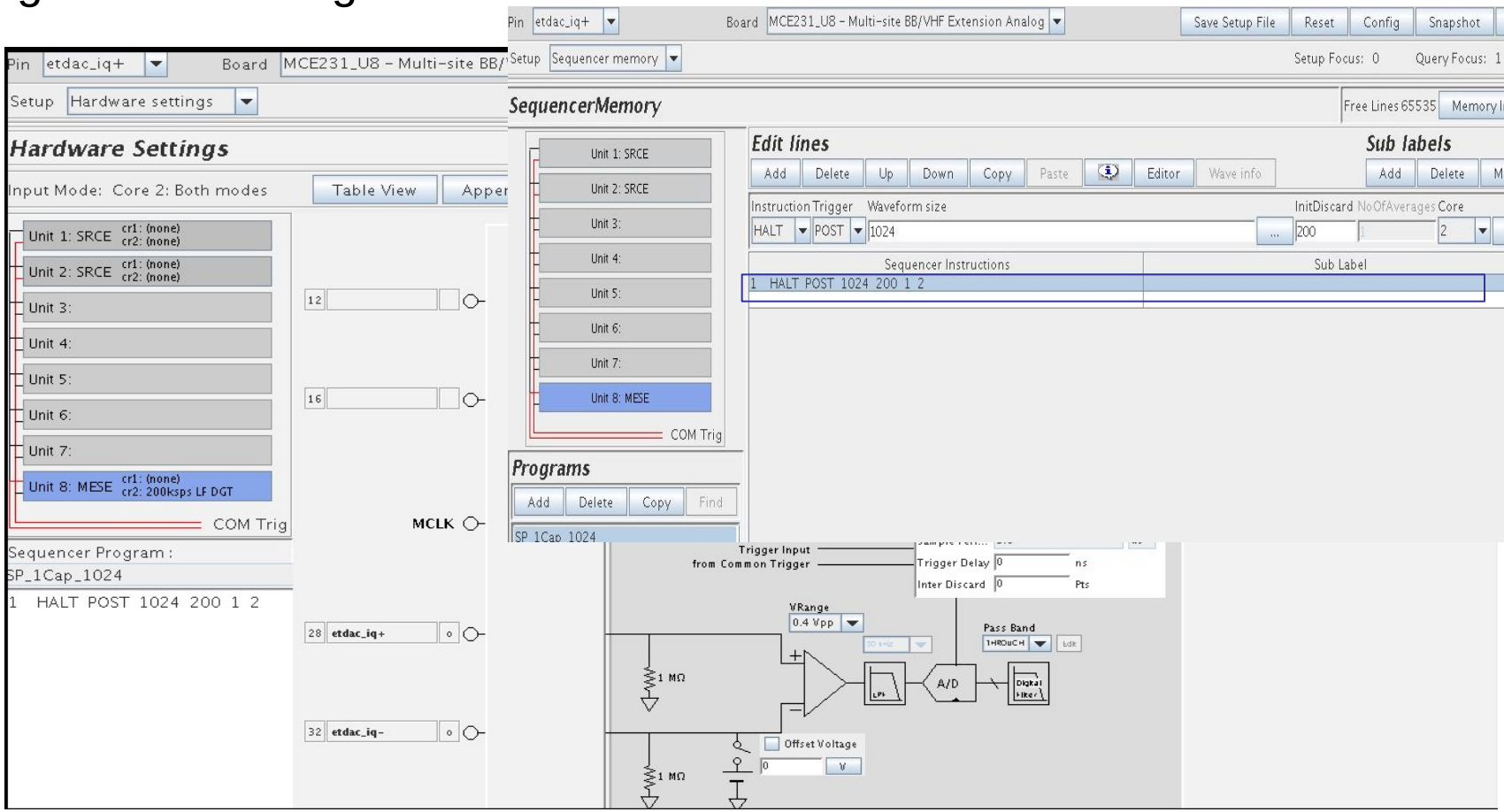
Property	Value
Test Suite	AN_ETDAC0_SpotCheck_MAX_NV_1
Comment	
Primaries	...
Test Type	M
Test Method	MSM_SOC_tml.custom.DAC.SpotCheck
Parameters	...
Debug	3
Development Mode	3 -- Generate ONLY
Measurement Mode	DIG
SMC Mode	0 -- OFF
DGT	
Number of Channels	1
Pin	etdac_iq+
Connection Type	DIFFERENTIAL
Core Function	LF
Sample Rate	200 KHz
Capture Size	1024
Initial Discard	200
HW Averages	1
Range	0.4
Filter	THRU
Impedance	1M
DC Offset	0
SPOTCHECK_PARAMETER	
Save the DC value	YES
Global Var Name	ETDAC_SPOT
Limits	...

type filter text

Property	Value
Test Suite	AN_TXDAC_SPOT_VMAX_MEAS_DAC0_I_LP1X_F
Comment	
Primaries	...
Test Type	M
Test Method	MSM_SOC_tml.custom.DAC.SpotCheck
Parameters	...
Debug	3
Development Mode	3 -- Generate ONLY
Measurement Mode	DIG
SMC Mode	0 -- OFF
DGT	
Number of Channels	1
Pin	txdac_iq+
Connection Type	DIFFERENTIAL
Core Function	LF
Sample Rate	200 KHz
Capture Size	1024
Initial Discard	200
HW Averages	1
Range	0.4
Filter	THRU
Impedance	1M
DC Offset	0
SPOTCHECK_PARAMETER	
Save the DC value	YES
Global Var Name	TXDAC0_SPOTMAX_I
Limits	...

Test Setup

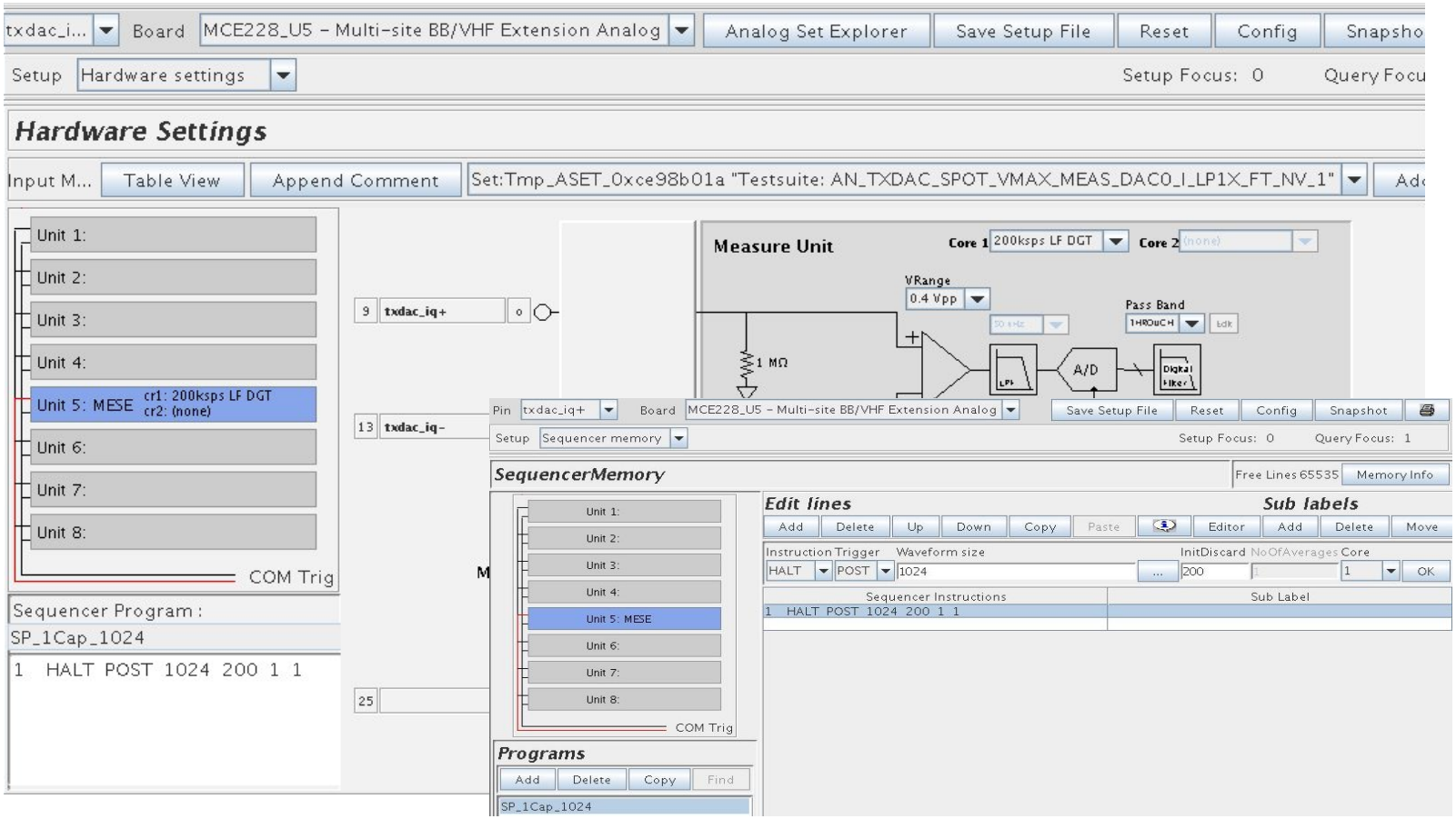
Running testsuit 1: AN_ETDAC0 in development mode 3, it will generate analog set for testsuit 1:



Sequencer program: SP_1Cap_1024 (1 HALT POST 1024 200 1 2) is generated using core 2.

Test Setup

Running testsuit 2: AN_TXDAC in development mode 3, it will generate analog set for testsuit 2:



Sequencer program: SP_1Cap_1024 (1 HALT POST 1024 200 1 1) is generated using core 1.

Problem Statement

Testsuits 1 Sequencer program SP_1Cap_1024: (1 HALT POST 1024 200 1 2)
Testsuits 2 Sequencer program: SP_1Cap_1024 (1 HALT POST 1024 200 1 1)

The sequencer program SP_1Cap_1024 generated by testsuits 2 will overwrite sequencer program generated by testsuits 1 since they are using the same sequencer name: SP_1Cap_1024.

When we switch to production mode,Testsuits 1 will encounter program with getwaveform function due to mismatch waveform ID. However testsuits 2 is running fine without such kind of error.

Check the analog set, testsuit 1 and 2 now share the same sequencer program: SP_1Cap_1024 (1 HALT POST 1024 200 1 1), which can explain above behavior.

Problem Statement

ADVANTEST

Need to change the following functions in SOC_tml/Analog/src/DGT_Settings.cpp

```
STRING DigitizerSettings::getSequencerLabel()
{
    if(!mSequencerLabel.empty()) return mSequencerLabel;
    INT averaging = mSequencerProgram.getMaxAveraging();
    if(averaging <= 1)
    {
        // no averaging
        return "SP_" + String(mNumCaptures) + "Cap_" + String(mSequencerProgram.rawDataSize());
    }

    return "SP_" + String(mNumCaptures) + "Cap_" + String(mSequencerProgram.rawDataSize()) + "_Averaging_" + String(averaging);
}
```

Can put more info in the sequencerlabel to differentiate the sequencer program?

Currently we need to manually change the sequencer label after its generation to avoid overwritten by following testsuits.

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