

## 波形配置验证说明

针对 AIOS 在按照图 1 所示波形参数进行波形配置后出现的问题：

- 1、profileCfg 中的时间设置有问题
- 2、chirpCfg 配置数量太多，导致内存不够

```
sensorStop
flushCfg
dfeDataOutputMode 1
channelCfg 15 6 0
adcCfg 2 1
adcbufCfg -1 0 0 1 1
profileCfg 0 60.25 10 6 80 0 0 46.5 0 128 2000 0 0 40
chirpCfg 0 0 0 0 0 0 2
chirpCfg 1 1 0 0 0 0 4
chirpCfg 2 2 0 0 0 0 2
chirpCfg 3 3 0 0 0 0 4
frameCfg 0 3 128 0 20 1 0
lowPower 0 1
sensorStart
```

图 1 CH 波形参数图

CH 解决方法：

问题 1：目前的 frame periodicity 设置为 20ms，过于激进，现在将 frame periodicity 设置为 50ms。

问题 2：L3 可用内存为 728K，减少一个 chirpCfg 和一个接收通道，增加一个发射通道，即变成 3T3R，波形示意参数图如图 2 所示。

RX	3
TX	3
Chirps	3
ADC Samples	128
Byte per sample	4
Loops	128
Total Size	589824(byte) $\text{Chirps} * \text{Loops} * \text{ADC Samples} * \text{RX} * \text{Byte per sample}$ $= 3 * 128 * 128 * 3 * 4 = 576\text{K} < 728\text{K}$

```

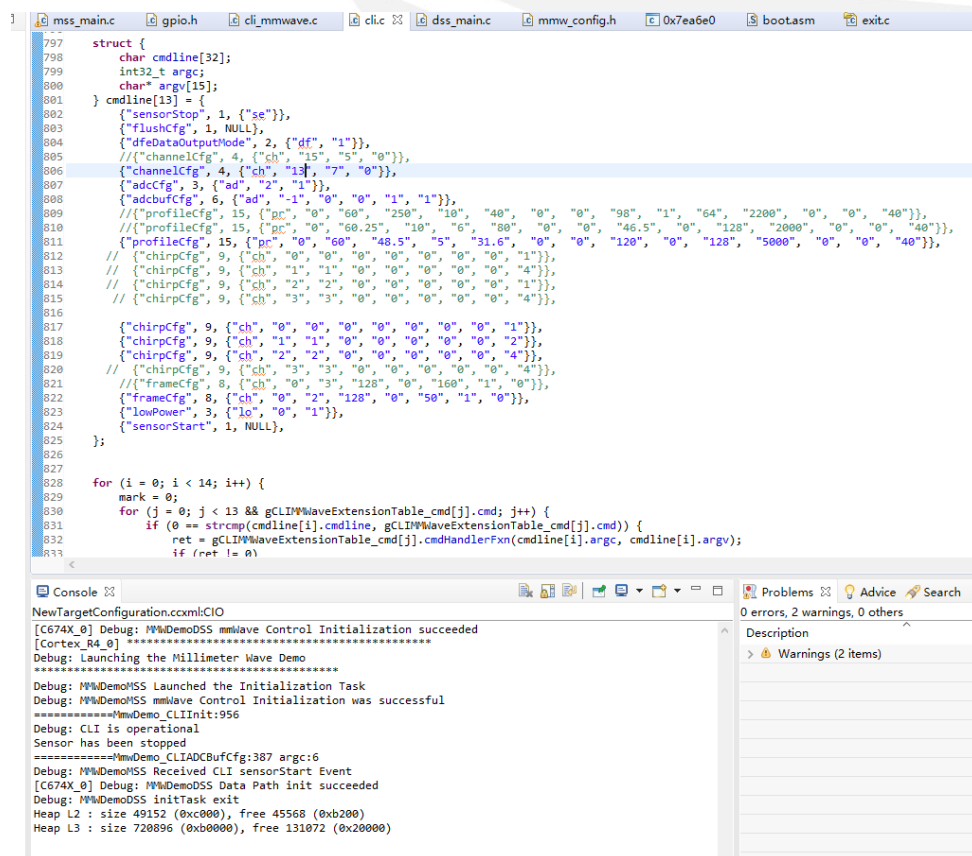
sensorStop
flushCfg
dfeDataOutputMode 1
channelCfg 13 7 0
adcCfg 2 1
adcbufCfg -1 0 0 1 1
profileCfg 0 60 48.4 5 31.6 0 0 120 0 128 5000 0 0 40
chirpCfg 0 0 0 0 0 0 1
chirpCfg 1 1 0 0 0 0 2
chirpCfg 2 2 0 0 0 0 4
frameCfg 0 2 128 0 50 1 0
lowPower 0 1
sensorStart

```

图 2 CH 波形参数图(修改后)

CH 验证结果:

将修改后的波形参数放到 AIOS 第二次提供工程中, 调试结果如下图所示, 问题 1 和问题 2 得到解决。



```

797 struct {
798     char cmdline[32];
799     int32_t argc;
800     char* argv[15];
801 } cmdline[13] = {
802     {"sensorStop", 1, {"se"}},
803     {"flushCfg", 1, NULL},
804     {"dfeDataOutputMode", 2, {"df", "1"}},
805     {"channelCfg", 4, {"ch", "13", "7", "0"}},
806     {"adcCfg", 3, {"ad", "2", "1"}},
807     {"adcbufCfg", 6, {"ad", "-1", "0", "0", "1", "1"}},
808     {"profileCfg", 15, {"pc", "0", "60", "48.4", "5", "31.6", "0", "0", "120", "0", "128", "5000", "0", "0", "40"}},
809     {"profileCfg", 15, {"pc", "0", "60", "48.4", "5", "31.6", "0", "0", "120", "0", "128", "5000", "0", "0", "40"}},
810     {"chirpCfg", 9, {"ch", "0", "0", "0", "0", "0", "0", "0", "1"}},
811     {"chirpCfg", 9, {"ch", "1", "1", "0", "0", "0", "0", "0", "2"}},
812     {"chirpCfg", 9, {"ch", "2", "2", "0", "0", "0", "0", "0", "4"}},
813     {"chirpCfg", 9, {"ch", "3", "3", "0", "0", "0", "0", "0", "8"}},
814     {"frameCfg", 8, {"ch", "0", "2", "128", "0", "50", "1", "0"}},
815     {"lowPower", 3, {"lo", "0", "1"}},
816     {"sensorStart", 1, NULL},
817 };
818
819 for (i = 0; i < 14; i++) {
820     mark = 0;
821     for (j = 0; j < 13 88 gCLIWaveExtensionTable_cmd[j].cmd; j++) {
822         if (0 == strcmp(cmdline[i].cmdline, gCLIWaveExtensionTable_cmd[j].cmd)) {
823             ret = gCLIWaveExtensionTable_cmd[j].cmdHandlerFxn(cmdline[i].argc, cmdline[i].argv);
824             if (ret != 0)
825                 mark = 1;
826         }
827     }
828     if (mark) {
829         printf("Command %s executed successfully\n", cmdline[i].cmdline);
830     }
831 }

```

Console Output:

```

NewTargetConfiguration.ccxml: CIO
[C674X_0] Debug: M%DemoDSS mmWave Control Initialization succeeded
[Cortex_R4_0] *****
Debug: Launching the Millimeter Wave Demo
*****
Debug: M%DemoDSS Launched the Initialization Task
Debug: M%DemoDSS mmWave Control Initialization was successful
*****
Debug: M%DemoDSS CLIInit:956
Debug: CLI is operational
Sensor has been stopped
*****
Debug: M%DemoDSS Received CLI sensorStart Event
[C674X_0] Debug: M%DemoDSS Data Path Init succeeded
Debug: M%DemoDSS initTask exit
Heap L2 : size 49152 (0xc000), free 45568 (0xb200)
Heap L3 : size 720896 (0xb0000), free 131072 (0x20000)

```

Problems: 0 errors, 2 warnings, 0 others

图 3 修改后波形验证示意图