

## Debug Procedure of drv8308

Recently, we are using TI's drv8308 chip for brushless motor closed-loop debugging, and we have encountered some problems. Ask Ti'experts for some guidance,Thanks. Two kinds of motors are debugged, one is two pairs of poles, the other is four pairs. The motor with four pairs of poles can be debugged smoothly. The external PPG frequency is 220hz and the registers are setted as follows:

```
DRV8308_Register g_tDrv8308_Reg_CloseLoop =
```

```
{
    // CTRL1 Register
    {
        6,    //AG_SETPT
        1,    //ENPOL
        1,    // DIRPOL
        1,    //BRKPOL
        1,    // SYNRECT
        1,    // PWMF
        0,    // SPDMODE
        1,    // FGSEL
        0,    // BRKMOD
        1    // RETRY
    },
    // ADVANCE Register
    {
        33    // ADVANCE
    },
    // COMCTRL1 Register
    {
        3,    // SPDREVS
        180    // MINSPD
    },
    // MOD120 Register
    {
        1,    //BASIC
        2,    // SPEEDTH
        3970// MOD120
    },
    // DRIVE Register
    {
        0,    //LRTIME
        0,    // HALLRST
        0,    // DELAY
        0,    // AUTOADV
    }
}
```

```

        1, //  AUTOGN
        0, //  ENSINE
        1, //  TDRIVE
        0, //  DTIME
        0  //  IDRIVE
    },
    // SPDGAIN Register
    {
        3,  //INTCLK
        1   // SPDGAIN
    },
    // FILK1 Register
    {
        1,  //HALLPOL
        0, //  BYPFILT
        1200 // FILK1
    },
    // FILK2 Register
    {
        1200  // FILK2
    },
    // COMPK1 Register
    {
        0,  // BYPCOMP
        2000  // COMPK1
    },
    // COMPK2 Register
    {
        6,  //AA_SETPT
        2000 // COMPK2
    },
    // LOOPGN Register
    {
        3,  //OCPDEG
        3, //  OCPTH
        0, //  OVTH
        0, //  VREF_EN
        200 // LOOPGN
    },
    // SPEED Register
    {
        0xFFF  // SPEED
    },
    // FAULT Register

```

```
{
    0,    //RLOCK
    0,//   VMOV
    0,//   CPFAIL
    0,//   UVLO
    0,//   OTS
    0,//   CPOC
    0    // OCP
}
};
```

But the same parameters are no longer applicable to the motor with four pairs of poles. After external high load is applied to the motor, the speed is not adjusted immediately, DRV8308 adjusts when the deviation is over 50%, it starts to speed up slowly, but the speed can't reach the set value in the end, and it will remain unchanged after 20% difference from the set value. We attempt to change multiple groups of data, such as SPDGAIN changed to 7, AA\_SETPT set to 6, LOOPGAIN to 1000, BYPCOM to 1, modify different permutation combinations such as filk1 register, filk2 register, compk1 register, compk2 register, etc., all of these attempts have no good effect. The meanings of the values of these registers such as filk1 register, filk2 register, compk1 register, compk2 register are not clear and I don't know how to configure them. We hereby request the assistance of experts.

