dcmotor的pins的配置与状态反应在如下structure中

```
typedef struct motor_connect_s {
        motor_pwm_out_t pwm_type;        /**< Type of PWM connection       */
        uint32_t        block_num;       /**< ASIC motor block number      */
        motor_enc_t     enc_inputs;      /**< encoder A/B inputs           */
        motor_pin_cfg_t pin_cfg[6];      /**< DC0 - DC5 pin configuration  */
} motor_connect_t;
```

paper motor的pins配置

```
                dcmotor_connect {
                        pwm_type = <DC_PWM_NORMAL>;
                        block_num = <5>;
                        enc_inputs = <SINGLE_A>;

                        pin_config = <  // PIN_FUNC      INVERT           PIN
                                DC_PIN_FUNC_SLP  DC_PIN_NO_INVERT DC_PIN_ONE
                                DC_PIN_FUNC_DIR  DC_PIN_NO_INVERT DC_PIN_ZERO
                                DC_PIN_FUNC_NC   DC_PIN_NO_INVERT DC_PIN_NO_SIGNAL
                                DC_PIN_FUNC_ENCA DC_PIN_NO_INVERT DC_PIN_NO_SIGNAL
                                DC_PIN_FUNC_PWM  DC_PIN_INVERT    DC_PIN_PWM0
                                DC_PIN_FUNC_NC   DC_PIN_NO_INVERT DC_PIN_NO_SIGNAL
                                >;
                };
```

mirror motor的pins配置

```
                dcmotor_connect {
                        pwm_type = <DC_PWM_NORMAL>;
                        block_num = <4>;
                        enc_inputs = <SINGLE_A>;


                        pin_config = <  // PIN_FUNC      INVERT          PIN_SIGNAL
                                DC_PIN_FUNC_NC   DC_PIN_NO_INVERT DC_PIN_NO_SIGNAL
                                DC_PIN_FUNC_PWM  DC_PIN_INVERT    DC_PIN_PWM0
                                DC_PIN_FUNC_NC   DC_PIN_NO_INVERT DC_PIN_NO_SIGNAL
                                DC_PIN_FUNC_ENCA DC_PIN_NO_INVERT DC_PIN_NO_SIGNAL
                                DC_PIN_FUNC_NC   DC_PIN_NO_INVERT DC_PIN_NO_SIGNAL
                                DC_PIN_FUNC_NC   DC_PIN_NO_INVERT DC_PIN_NO_SIGNAL
                        >;
                };
```

dts中的配置信息都会被反应到structure motor_connect_t中。

每个pin有3个fields

1. PIN_FUNC

2. INVERT

3. PIN_SIGNAL

```
/**
 * \brief (Helper) Get the invert value for the specified DC motor pin
 *
 * Grab the invert value for the specified DC pin from the supplied connection
 * table.  Note that this routine translates from connect table values to actual
 * register values.
 *
```

```
 *  \param[in]  motor_connect_t*  Pointer to motor connections table
 *  \param[in]  uint32_t          DC motor block pin number (0 - 5)
 *  \param[out] uint32_t          Returned invert value (register value)
 **/
static uint32_t connect_get_inv_for_pin(const motor_connect_t *mtr_connects, uint32_t pin_num)
```

该function就是根据pin_number取得"pin_config"数组中该pin_num的是否INVERT info.

```
/**
 *  \brief (Helper) Get the pin select signal value for the specified DC motor pin
 *
 *  Grab the signal value for the specified DC pin from the supplied connection table.
 *  Note that this routine translates from connect table values to actual register values.
 *
 *  \param[in]  motor_connect_t* Pointer to motor connections table
 *  \param[in]  uint32_t          DC motor block pin number (0 - 5)
 *  \param[out] uint32_t          Returned signal value (register value)
 **/
static uint32_t connect_get_sig_for_pin(const motor_connect_t *mtr_connects, uint32_t pin_num)
```

该function就是根据pin_number取得"pin_config"数组中该pin_num的是否signal info.是pwm,"0","1"，etc.

```
/**
 *  \brief (Helper) Get the pin number of the supplied function
 *
 *  Grab the signal value for the specified DC pin from the supplied connection table.
```

```
 *
 *  \param[in]  motor_connect_t* Pointer to motor connections table
 *  \param[in]  motor_pin_func_t Motor function to find
 *  \param[out] uint32_t         Returned pin number (0-5 if found, otherwise INVALID_PIN_NUM)
 **/
static uint32_t connect_get_pin_for_func(const motor_connect_t *mtr_connects,
        motor_pin_func_t       mtr_pin_func)
```

该function就是根据PIN_FUNC反向查找对应的pin_number

```
/**
 *  \brief (Helper) Set on/off pin state for specified pin
 *
 *  Set the state of the specified pin.
 *
 *  \param[in]  motor_regs   Pointer to the motor registers
 *  \param[in]  pin          Pin number (0 - 5)
 *  \param[in]  state        Desired on/off state (0 or 1)
 **/
static void set_state_for_pin(struct dcmotor_reg_driver_interface *reg_iface, uint32_t pin, uint32_t
state)
```

该function根据pin number来设置该pin应该输出的signal是0还是1

```
/**
 *  \brief Set the state of the direction pin
 *
```

```
 *  Uses the appropriate MCFG pinsel to set the state of the direction pin.  We
 *  need the connection table to figure out what the proper bit is ... note that
 *  it will not be mapped for some PWM methods.
 *
 *  \param[in] motor_regs    Pointer to the motor registers
 *  \param[in] connect_table Pointer to a motor connection table
 *  \param[in] dir           Desired motor direction
 **/
void set_dcmtr6pin_dir_state(struct dcmotor_reg_driver_interface *reg_iface,
        const motor_connect_t *connect_table,
        motor_dir_t           dir)
```

该函数设置负责控制motor方向的pin的状态，是forward还是reverse。

为了通用性，负责控制motor方向的pin是通过connect_get_pin_for_func()搜索出来的.

---

int set_dcmtr6pin_pin_to_state(dcmotor_t *dcmotor, motor_pin_func_t pin_func, bool state)

该函数设置特定function的pin的输出是"0"还是"1"

同样，特定function的pin是connect_get_pin_for_func()搜索出来的.
