TAS5705 L+R Sum Implementation – 29 September 2009

Goal = pass (L+R)/2 sum to outputs A and B, BTL BD mode.

Figure 27. TAS5705 DAP Data Flow Diagram With I²C Registers
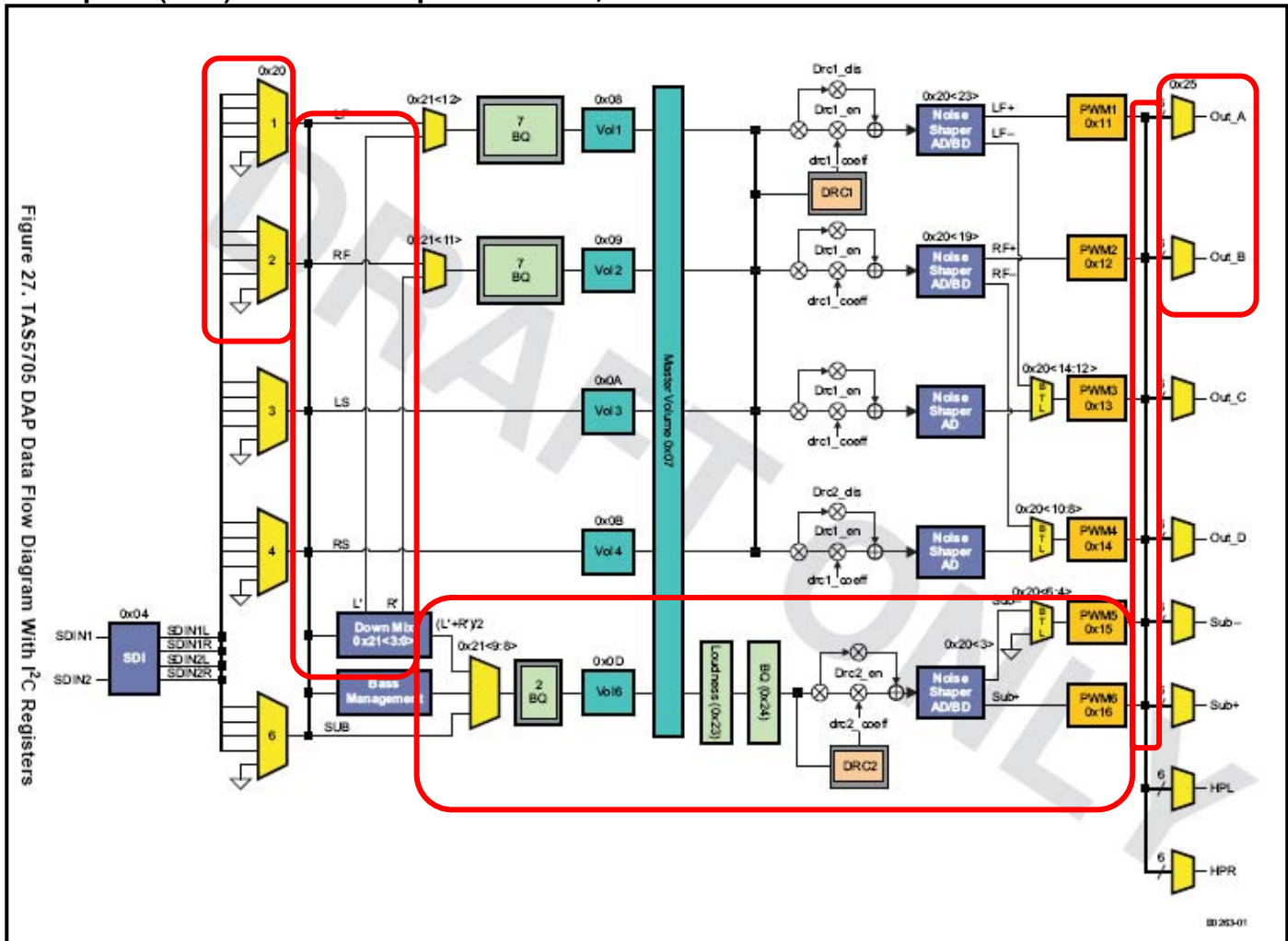
1. Remove channels 5 and 6 from the shut down group, BEFORE taking the device out of shutdown: set PWM Shutdown Group Register 0x19 to 00 (data sheet p.55).
    a. GDE default = 30 (channels 5 and 6 assigned to the shut down group – channels assigned to the shut down group remain shut down at all times).
    b. 00 = remove all channels from the shut down group.

2. Select L & R inputs and BTL modes: set Input MUX Register 0x20 as desired for Input MUXs 1 and 2 (data sheet p.58).
    a. GDE default = 00 – 89 – 77 – 7A.
    b. 00 = reserved.
    c. 89 = channel 1 BD mode, SDIN1-L to channel 1, channel 2 BD mode, SDIN1-R to channel 2.
    d. 77 = channel 1 (BTL–) to channel 3 (BTL pair for channel 1), channel 2 (BTL–) to channel 4 (BTL pair for channel 2).
    e. 7A = channel 6 (BTL–) to channel 5 (BTL pair for channel 6), channel 6 BD mode, SDIN2-L to channel 6 (don't actually care about this).

3. Select Downmix input: set Downmix Input Multiplexer Register 0x21 bits 9:8 = 10 to select downmix sum data to channel 6, set bits 1:0 = 11 to select L' = Lf, R' = Rf from channels 1 and 2 (data sheet p.60).
    a. GDE default = 00 – 00 – 41 – 01.

    b. Set = 00 – 00 – x2 – 03.
    c. 00 – 00 = unused.
    d. x2 = enable (don't care) data to channel 1, enable (don't care) data to channel 2, enable (L'+R')/2 downmix data to channel 6.
    e. 03 = enable channel 1 data to downmix block, enable channel 2 data to downmix block.
    f. See also Table 5 on data sheet p.42.

4. The preceding steps sum input sources (L+R)/2 and send the sum to channel 6 with channel5 as its BTL complement. Channel 6 includes volume, 3 biquads, loudness and DRC. Each of these may be used or ignored.

5. Select channels 5 and 6 to power stage channels A and B (channel 5 is the BTL complement of channel 6):
set PWM Output MUX Register 0x25 bits 23:16 = 0x54.
    a. GDE default = 00 – 02 – 13 – 01.
    b. Set = xx – 54 – xx – xx.
    c. xx = don't care, HP inputs, outputs C and D inputs, SUB inputs.
    d. 54 = multiplex channel 6 to OutA, multiplex channel 5 to OutB.
    e. (45 would also work but would reverse phase.)