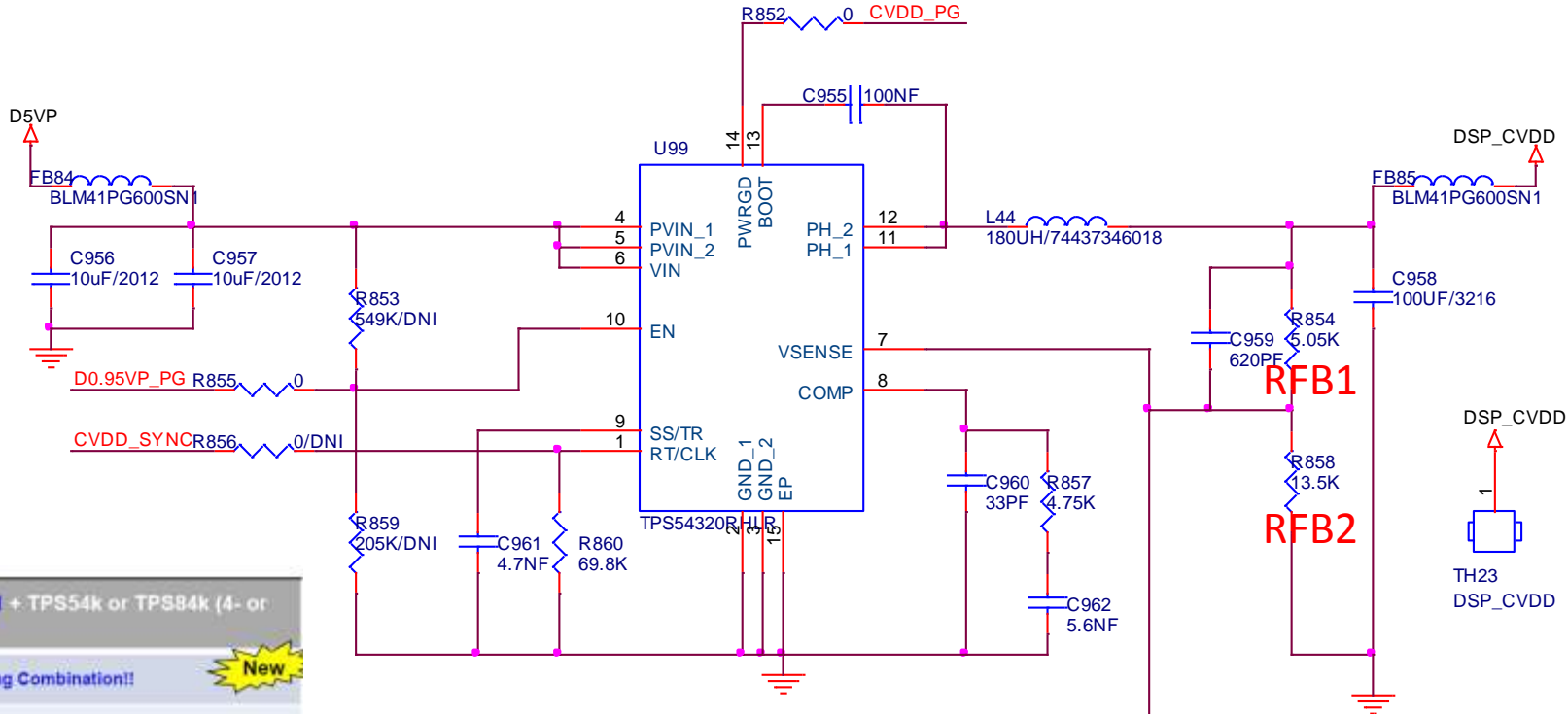


LM10011 + TPS54320



LM10010/1 + TPS54k or TPS84k (4- or 6-Bit VID)

Yes - Winning Combination!! New

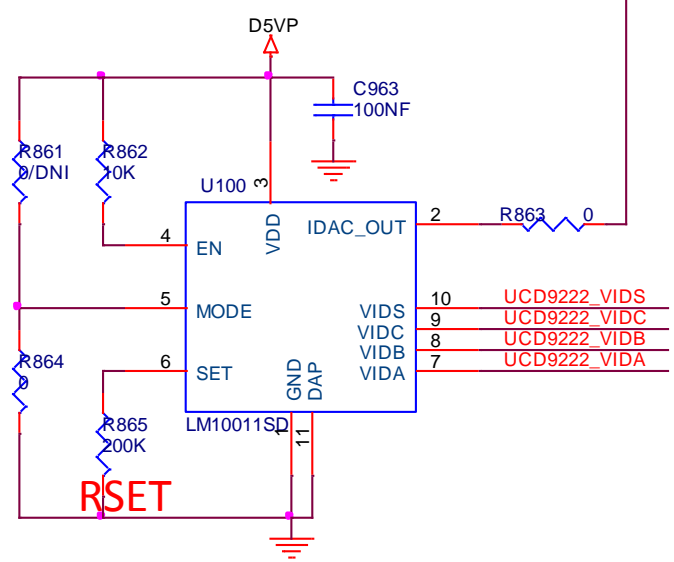
Single-Chip designs (Preferred)

Now

4- or 5-bit VID

- The most cost effective for single-chip designs.
- Re-use traditional Analog based integrated FET DC/DC converters.
- Plentiful converter offerings available.
- Winning Combination!!
- Voltage level translators **NOT** required...
- PMPxxxx reference design available in 2Q12
- LM10011 targeted for 2Q12 RTM.

• LM10011 is compatible with competitive controllers/converters, theoretically!!



Calculating resistors

Parameter	value
Start voltage	1.1V
Output Voltage range	0.8~1.1V
mode	6bit
Vout_LSB	300mV/63 = 4.76mV
IDAC_LSB	59.2u/63 = 0.940uA

$$V_{OUT_LSB} = LSB \times R_{FB1} \quad *LM10011 \text{ datasheet}$$

$$\rightarrow R_{FB1} = 4.76\text{mV} / 0.940\text{uA} = 5.05\text{k}$$

$$V_{OUT} = V_{FB} \times \left(1 + \frac{R_{FB1}}{R_{FB2}}\right) - IDAC_OUT \times R_{FB1} \quad *TPS54320 \text{ VFB}(V_{REF}) = 0.8\text{V}$$

$$\rightarrow 1.1\text{V} = 0.8\text{V} \times \left(1 + \frac{5.05\text{K}}{R_{FB2}}\right) - 0\text{V}, R_{FB2} = 13.5\text{K}$$

$$IDAC_OUT = \frac{1}{R_{FB1}} \left(V_{FB} \times \left(1 + \frac{R_{FB1}}{R_{FB2}}\right) - V_{OUT} \right) \quad *LM10011 \text{ datasheet}$$

$$\rightarrow IDAC_OUT = (1/5.05\text{K}) \times (0.8 \times (1 + (5.05\text{K}/13.5\text{K})) - 1.05) = 9.75\text{uA}$$

→ from table2 of LM10011 datasheet

$$\rightarrow R_{set} = 200\text{K}$$

TI WEBENCH design

