電子電路實驗 6：ADC/DAC

實驗預報

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1 Objectives

1. To study another group of analog IC circuits of great importance, data converters.

2 Procedures

2.1 Measure the voltage as full load.

1. Supply voltage signal $V_{in} = 0\,\mathrm{V}$ and V_R.
2. Slowly increase V_R from $2.50\,\mathrm{V}$ to $5\,\mathrm{V}$. `Format` ▷`YT mode`.
3. Adjust V_R as the digital output just equals to `11111111`.
4. Record V_R.

2.2 Measure Analog voltage value to Digital output.

1. Set $V_R = 2.5\,\mathrm{V}$ and $V_{in} = 0\,\mathrm{V}$ to $2.5\,\mathrm{V}$.
2. Slowly increase V_{in} from 0 to $5\,\mathrm{V}$, and record V_{in}.

2.3 DAC0800 Testing circuit

1. In Fig. 2, supply $V_{DD} = 5\,\mathrm{V}, V_{ref} = 5\,\mathrm{V}$ for DAC circuit and $V_{\pm} = \pm 15\,\mathrm{V}$ for μA741 OP Amp.
2. Input `11111111` to the digital input terminals.
3. Adjust VR $= 10\,\mathrm{k}\Omega$ to have $V_{out} = 5\,\mathrm{V}$. Record the value of VR and V_{out}.

2.4 Connection of both circuit

1. Connect DB7 to B1, DB6 to B2, ... and DB0 to B8.
2. Supply voltage $V_R = 2.5\,\mathrm{V}$ and slowly increase V_{in} from 0 to $5\,\mathrm{V}$. Record V_{in} and V_{out}.