Variable USB-C Power Supply
Checklist

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Minimum Goal:

- 5V, 2A output (Power the EDS Class-D amplifier through microUSB)

Expected Goal:

- Use the TUSB321 chip to determine which device and switch the power supply
    - To provide the power through the load
- Power device detection logic using basic logic gates (NOR, NAND)
- Implement variable voltage feedback by changing feedback resistors
- Variable power, multiple rails based on multiple USB-C profiles
    - Profile #1 (5V, 2A) => 10 Watts
    - Profile #2 (12V, 3A) => 36 Watts
    - Profile #3 (20V, 2A) => 40 Watts
- Better than calculated worst case equivalent linear power supply efficiency (30-35%) for 5V

Stretch Goal:

- Extend power to laptop and phone
- Overvoltage and overcurrent protection
- Preventing overshoot voltage from destroying device.
- Actually charging a device (battery pack, or really inexpensive USB-C phone)
- Shoot for 70%+ efficiency (85% is maximum we've seen)