

MICROCONTROLLER

The schematic diagram illustrates the electrical connections for a microcontroller system. Key components and their connections include:

- Microcontroller (U1):** The central component, with pins connected to various peripherals and power rails.
- Power and Ground:**
 - Vbat:** Connected to the positive supply rail.
 - Vdd:** Connected to the microcontroller's VDD pin.
 - Vss:** Connected to the microcontroller's VSS pin.
 - Vusb:** Connected to the USB supply rail.
 - Vbus:** Connected to the USB bus supply rail.
 - Van:** Connected to the analog supply rail.
- Peripherals:**
 - IR LED (D4):** Connected to the microcontroller via a resistor (R41) and a diode (D4).
 - Push Button (S1):** Connected to the microcontroller via a resistor (R24) and a diode (D4).
 - RGB LED (D3):** Connected to the microcontroller via resistors (R2, R4, R16, R24) and diodes (D3).
 - USB Connector (J5):** Connected to the microcontroller via a multi-pin connector (J5).
 - J7 Connector:** A multi-pin connector connected to the microcontroller.
- Passive Components:**
 - Capacitors:** C22 (10uF), C28 (10uF), C34 (10uF).
 - Resistors:** R2 (10k), R4 (10k), R16 (10k), R24 (10k), R28 (10k), R40 (10k).

The diagram shows the internal connections of the microcontroller to these external components, ensuring proper power supply, signal integrity, and peripheral functionality.

[illegible]

POWER

The schematic diagram illustrates the power management section of a USB DAC. It includes a USB detect circuit (R19, R20, D1), a battery connection (B1, X1, S4, C23), a 2.8V boost converter (U16, L5, R27, U22), and active low output drivers (Q1, Q2, Q4) for PIR_EN, AUDIO_EN, and RF_EN. The diagram also shows a battery monitor (R7, R8, C25) and a 2.5V regulator (U17).

POWER

USB DETECT turns of boost reg.

ACTIVE LOW

ANALOGUE SENSORS

The diagram illustrates a complex analogue sensor circuit. Key components include:

- U3 (MCP9800):** A precision centiCelsius thermometer.
- U4A and U4B (MCP6232):** Low-power operational amplifiers used for signal processing.
- U7A and U7B (MCP6052):** Low-power operational amplifiers used for signal processing.
- U9 (VMM7120):** A precision voltage monitor.
- U10 (VPR1):** A photoresistor used for light sensing.
- U11A and U11B (MCP6232):** Low-power operational amplifiers used for signal processing.
- U12 (ADPS 9007):** A digital potentiometer.
- U18 and U5 (N-FET):** N-channel MOSFETs used for signal processing.
- U20 (N-FET):** An N-channel MOSFET used for signal processing.
- U21:** A component used for signal processing.

The circuit includes various resistors (R4, R5, R9, R10, R11, R12, R13, R14, R21, R22, R29, R30, R32, R33, R34, R36, R37, R38, R39) and capacitors (C21, C26, C27, C36, C37, C38, C39, C40, C43, C44, C45, C48) for signal conditioning and timing. The diagram also shows connections for various signals, including Vaudio, Vmic, Vtemp, and Vlight.

I2C BUS SENSORS

The image displays four distinct I2C bus sensor circuit diagrams, each featuring a specific sensor chip and its associated passive components:

- 0x4E i2caddr:** Utilizes the **HM16130** sensor. It is connected to **VDD** and **GND** via a network of resistors (**R2**, **R3**) and capacitors (**C35**, **C44**, **C20**). The I2C lines are **SDA** and **SCL**.
- 0xD0 i2caddr:** Utilizes the **MCP3421** sensor. It is connected to **VDD** and **GND** via a network of resistors (**R26**) and capacitors (**C24**). The I2C lines are **SDA** and **SCL**.
- 0xEE i2caddr:** Utilizes the **IMP9185** sensor. It is connected to **VDD** and **GND** via a network of resistors (**R2**, **R3**) and capacitors (**C35**, **C44**, **C20**). The I2C lines are **SDA** and **SCL**.
- 0x90 i2caddr:** Utilizes the **MCP9800** sensor. It is connected to **VDD** and **GND** via a network of resistors (**R2**, **R3**) and capacitors (**C35**, **C44**, **C20**). The I2C lines are **SDA** and **SCL**.