1. Three types of registers. One is **Data Direction Register**, named DDRB, DDRC, DDRD, DDRE, DDRF. It configures the GPIO as either input or output. Another is **Port Data Register**, named PORTB, PORTC, PORTD, PORTE, PORTF. It can set a pin high or low when the pin is an output; when a pin is an input, it writes 1 to enable the pull-up resistor and writes 0 disables it. The last one is **Pin Input Register**. It has PINB, PINC, PIND, PINE, PINF. It reads the current logic level on an input pin.
2. Set a bit: PORTB |= (1 << PB0)

Clearing a bit: PORTB &= ~(1 << PB0);

Toggling a bit: PORTB ^= (1 << PB0)

Testing a bit: if (PINB & (1 << PB0)) { // check if PB0 of PINB is high

// PB0 is HIGH

} else {

// PB0 is LOW }

1. Power pads: GND, 3.3V, VBATT

GPIO Pads: Digital I/O, Analog input, PWM output, Interrupts, Capacitive touch.

Internally connected pins: D4, D5, D7, D13, D17, D19, D21, A0, A4, A5

1. A diagram of electrical wiring

   AI-generated content may be incorrect.