Opamp_P4 example project
1.1

Features:

- General purpose signal amplifier

General Description

This example project demonstrates the functionality of the Opamp as the/a general purpose signal amplifier.

Development kit configuration

This example project is designed to run on the CY8CKIT-042 kit from Cypress Semiconductor. A description of the kit, along with more example programs and ordering information, can be found at http://www.cypress.com/go/cy8ckit-042.

The project requires configuration settings changes to run on other kits from Cypress Semiconductor. Table 1 is the list of the supported kits. To switch from CY8CKIT-042 to any other kit, change the project's device with the help of Device Selector called from the project's context menu.

Table 1. Development Kits vs Parts

Development Kit	Device
CY8CKIT-042	CY8C4245AXI-483
CY8CKIT-042-BLE	CY8C4247LQI-BL483
CY8CKIT-044	CY8C4247AZI-M485
CY8CKIT-046	CY8C4248BZI-L489
CY8CKIT-041	CY8C4146AZI-S433

The pin assignments for the supported kits are in Table 2.

Table 2. Pin Assignment

Pin Name	Development Kit				
	CY8CKIT-042	CY8CKIT-042 BLE	CY8CKIT-044	CY8CKIT-046	CY8CKIT-041
Vminus	P1[1]	P1[1]	P1[1]	P1[1]	P1[1]
Vplus	P1[0]	P1[0]	P1[0]	P1[0]	P1[0]
Vout	P1[2]	P1[2]	P1[2]	P1[2]	P1[2]

The following steps should be performed to observe the project's operation:

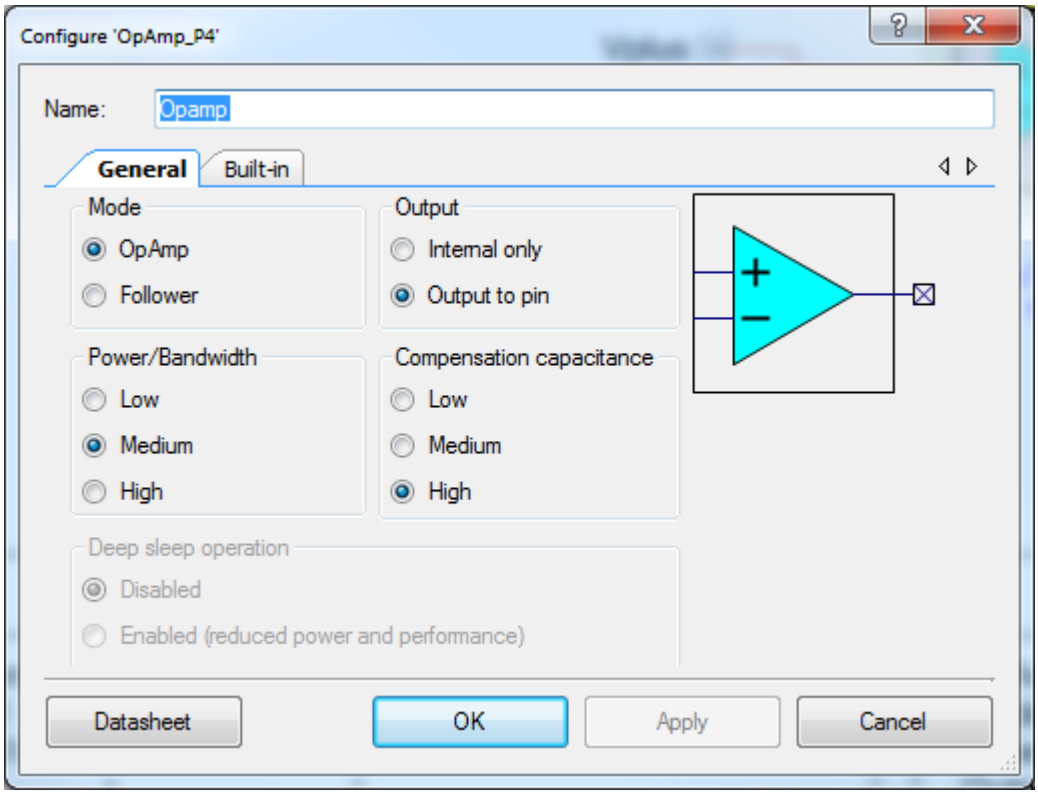
1. Connect a Rf resistor between the Vminus and Vout pins.
2. Connect a R1 resistor between Vminus pin and GND.

3. Connect the input voltage (Vin) source (e.g. 0.5V) to the Vplus pin.
4. Build the project and program the hex file on to the target device.
5. Power cycle the device and observe the voltage level (1V) on Vout pin using a multimeter, refer to the Expected result section for more information.

Project configuration

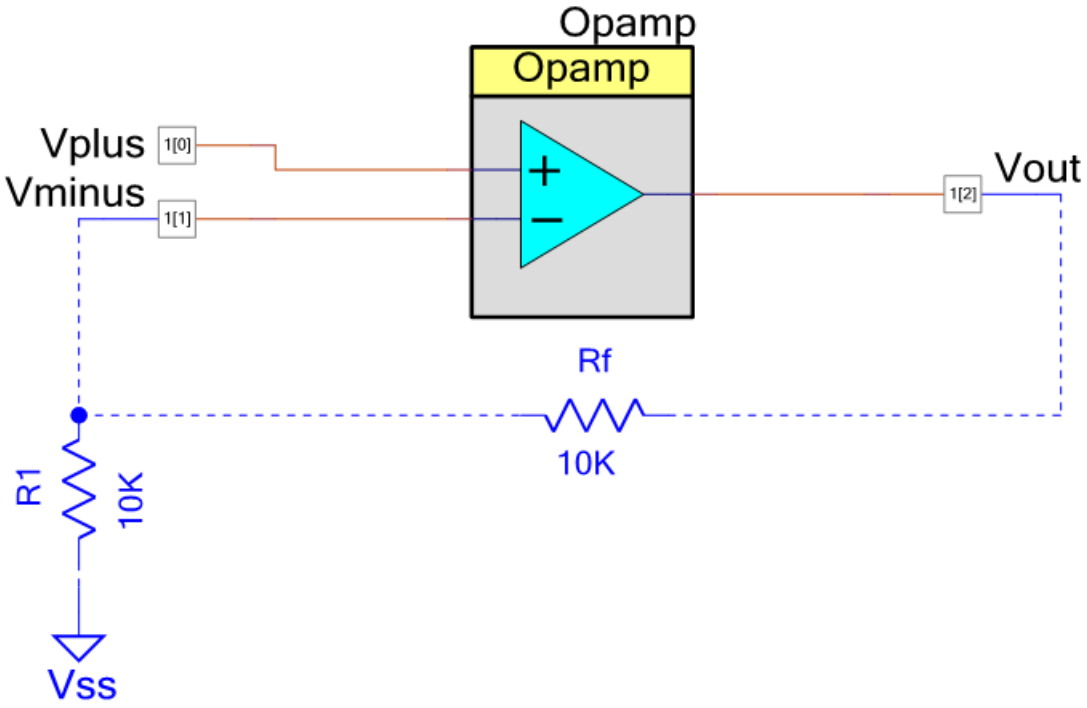
The example project consists of the analog pins and Opamp Components. The Opamp component configuration is shown in Figure 1.

Figure 1. Opamp Component Configuration



The top design schematic is shown in Figure 2.

Figure 2. Top Design Schematic



Expected results

The Opamp component works as an amplifier with the next gain: Gain = 1 + Rf/R1. The output voltage is Vout = Vin * Gain. In our case Rf = R1 = 10k, so Gain = 2 and the observed output voltage should be twice bigger than the input voltage. For example if Vin= 0.5V, than Vout = 1V.