MuntsOS Embedded Linux

Application Note #5: C++ LED Flash Example

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Introduction

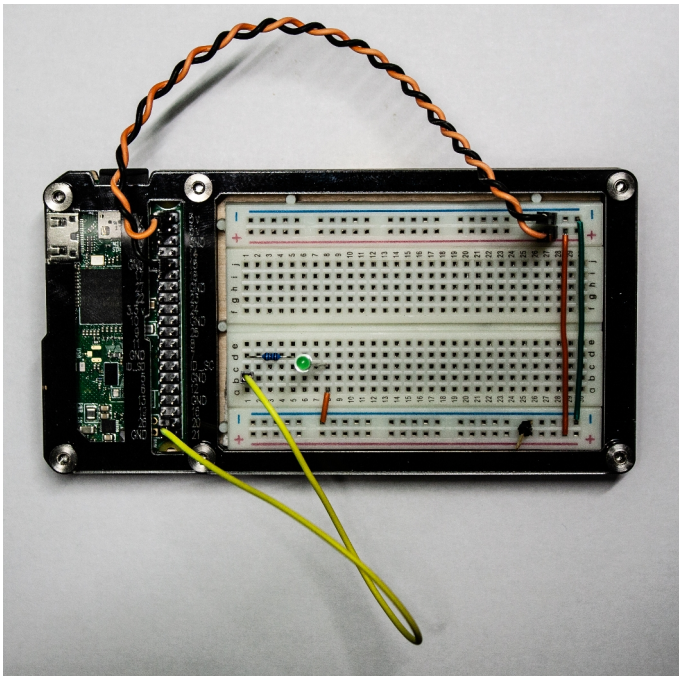
This application note describes how to create, build, and run a C++ program to flash an LED on a target computer running ***MuntsOS Embedded Linux***.

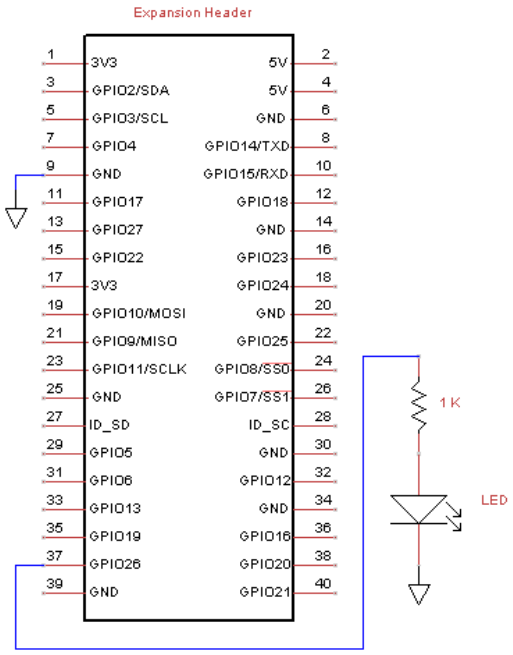
Prerequisites

The ***MuntsOS Embedded Linux*** software development environment must be installed on a Linux development computer (AppNote #1 or AppNote #2).

MuntsOS Embedded Linux must be installed on the target computer (AppNote #3).

Test Platform Hardware





The test platform for the purposes of this application note consists of a Raspberry Pi Zero 2 Wireless mounted in a Zebra Zero Plus Breadboard case. The orange and black jumper wires connect **`+3.3V`** and **`GND`** on the Raspberry Pi expansion header to the breadboard power rails. The yellow jumber connects **`GPIO26`** to a 1K ohm current limiting resistor and an LED.

Test Program Source Code

Available for download at: https://repo.munts.com/muntsos/doc/.blinky/blinky.cpp

```
#include <cstdio>
#include <unistd.h>

#include <raspberrypi.h>

int main(void)
{
  puts("\nMuntsOS C++ LED Test\n");

  // Configure a GPIO output to drive an LED

  Interfaces::GPIO::Pin LED =
    new libsimpleio::GPIO::Pin_Class(RaspberryPi::GPIO26,
      Interfaces::GPIO::OUTPUT, false);

  // Flash the LED forever (until killed)

  puts("Press CONTROL-C to exit.\n");

  for (;;)
  {
    *LED = ! *LED;
    usleep(500000); // microseconds = 0.5 seconds
  }
}
```

Exercise

This example exercise demonstrates how to create a C++ program project (outside of the ***MuntsOS*** code tree checkout), compile it, and run it on the test platform hardware.

Step 1: Prepare the **`blinky`** project:

```
mkdir $HOME/blinky
cd $HOME/blinky
wget https://repo.munts.com/muntsos/doc/.blinky/Makefile.c++
mv Makefile.c++ Makefile
wget https://repo.munts.com/muntsos/doc/.blinky/blinky.cpp
```

Step 2: Build the **`blinky`** project:

```
make BOARDNAME=RaspberryPiZero2W
```

Step 3: Copy **`blinky`** to the test platform:

```
scp blinky root@snoopy:.
```

Step 4: Run the test program on the test platform:

```
ssh root@snoopy
./blinky
```

The LED should begin flashing once a second, until you press **`CONTROL-C`**.