MuntsOS Embedded Linux

Application Note #8: 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***, using the ***.Net*** SDK (Software Development Kit).

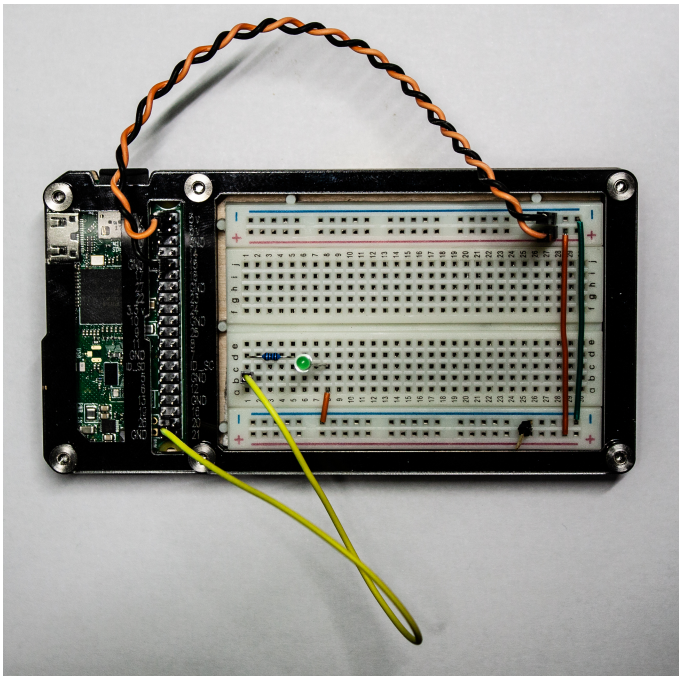
Prerequisites

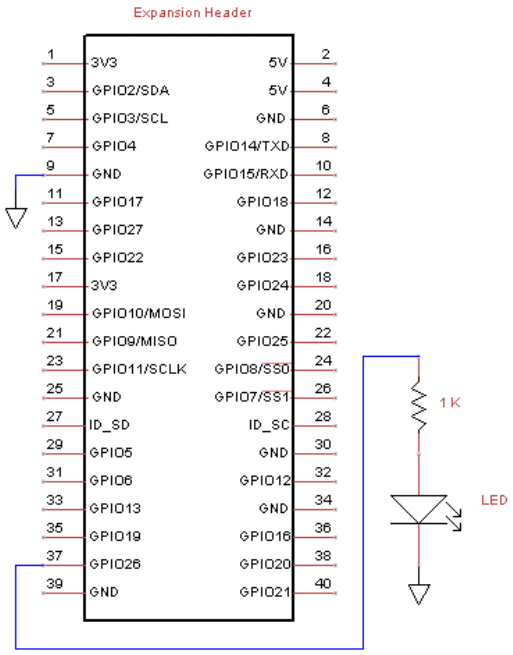
The ***.Net*** SDK must be installed on a Linux, MacOS, or Windows host system.

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

The ***.Net*** runtime extension **`dotnet-muntsos-aarch64.deb`** must be installed on the target computer, by running the **`sysconfig`** command on the target computer.

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: http://git.munts.com/muntsos/doc/.blinky/blinky.cs

```
using static System.Console;

WriteLine("\nMuntsOS C# LED Test\n");

// Configure a GPIO output to drive an LED

IO.Objects.SimpleIO.Device.Designator desg_LED =
  new IO.Objects.SimpleIO.Device.Designator(0, 26);

IO.Interfaces.GPIO.Pin LED =
  new IO.Objects.SimpleIO.GPIO.Pin(desg_LED,
    IO.Interfaces.GPIO.Direction.Output);

// Flash the LED forever (until killed)

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

for (;;)
{
  LED.state = !LED.state;
  System.Threading.Thread.Sleep(500);
}
```

Exercise

This example exercise demonstrates how to create a C# program project, compile it with the ***.Net*** SDK, and run it on the test platform hardware.

Step 1: Install ***.Net*** project templates for the ***Linux Simple I/O Library***, from https://www.nuget.org :

```
dotnet new install libsimpleio-templates
```

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

```
dotnet new csharp_console_libsimpleio -o blinky
cd blinky
wget -O Program.cs http://git.munts.com/muntsos/doc/.blinky/blinky.cs
```

Step 3: Build the **`blinky`** project:

```
dotnet publish
```

Step 4: Copy the **`blinky`** program files to the target platform:

```
scp bin/Release/net8.0/publish/* root@snoopy:.
```

Step 5: Run the test program on the test platform:

```
ssh root@snoopy
dotnet blinky.dll
```

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