DuinoMite MMBasic 3.1

This is an implementation of MMBasic version 3.1 running on the DuinoMite series of boards from Olimex (http://olimex.com). This supports all the standard Maximite and advanced MMBasic features such as optional line numbers, user defined subroutines and the full screen editor.

This version does not does not attempt to support the extra hardware characteristics of these boards (I/O Pin multiplexing, UEXT, CAN networking, etc). In the future I plan to add support for some of these (in particular hardware serial) but I do not have a time frame at present.

For documentation on the hardware you should visit the Olimex website. For documentation on MMBasic refer to the attached file "MMBasic Language Manual"

The only difference compared to the standard implementation of MMBasic on the Maximite are:
- I/O pins 7 to 12 and 19 and 20 are not supported.
- Serial port COM2 has been moved to pins 13 and 14.
- The I2C function has been moved to pins 5 and 6.

All other features that are standard on the Maximite should work in this version.

Disclaimer: This version of MMBasic has been tested on an early prototype provided by Olimex but there may be subtle differences in the newer hardware that I have not found. You can always reload the Olimex version of MMBasic based on version 2.7.

I hope that you have fun with MMBasic Ver 3.1

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Upgrading to MMBasic 3.1

Loading new firmware is controlled by a boot loader. This is a small program which has the ability to reprogram the PIC32 program memory using data sent to it over the USB interface. It is located in a reserved section of the PIC32's program memory and is always there, regardless of what program is loaded into the main memory.

To upgrade you need a program running on your computer that will upload the new MMBasic to the boot loader running on the PIC32. This program is MPHidFlash and you can download the Windows, Macintosh or Linux version from: http://code.google.com/p/mphidflash/

To start the upgrade process you should hold down the boot load button while you apply power. Plug the USB cable from the DuinoMite into your computer and it should automatically recognise it and load the appropriate driver (called a HID driver). In Windows it will show up in Device Manager as a "Human Interface Device", "USB Input Device".

To upload the new firmware enter the following command line:

```
mphidflash –v 15BA –p 0032 –n –write <filename>
```

Where `<filename>` is the name of the firmware upgrade file (it will have a `.hex` extension).

The `–n` option (skip verify) is required because, for some reason, the verify function in MPHidFlash does not work with MMBasic upgrades. The file will still be written correctly and you can test it by cycling the power and checking that MMBasic runs OK.

The complete cycle (erase and program) should take less than 60 seconds. As it runs MPHidFlash will first show "Erasing" then "Writing" followed by many dots as it writes each block of data to the PIC32.

Remove and re apply power (without holding down the boot load button) and the DuinoMite will start up running MMBasic 3.1.