**PRE-ALPHA RELEASES**
Being the translations and transcribings from the stone tablets of one Peter Mather :)

25/01/2022
Things to note:
You need to click in the window to enable the keyboard before use and after changing mode
The keyboard handling is very primitive - no auto-repeat and single keymap (UKish)
Use SHIFT-CTRL-X to exit the program tidily
Use LIST COMMANDS and LIST FUNCTIONS to see what is (should be) working
On first run the program stores a file ".options" in "MyDocuments" and the FILES command will show all files in my documents (FILES command is still very primitive - no parameters, no sort, and no paging
USE OPTION DEFAULT PATH "directory" to select the directory from where on startup you want to be able to load programs. This must be a fully specified filepath e.g. OPTION DEFAULT PATH "C:/USERS/PETER/DOCUMENTS/MMB4W". The filepath must exist.
By default the program opens with a 1024x768 window
Use OPTION DEFAULT MODE n to select the graphics mode to use on startup. The modes are as per CMM2 but always ARGB8888
Use the MODE command to switch graphics without rebooting
Use OPTION DEFAULT FONT n [,scale] to select the font to use on startup (same syntax as the font command)
The editor is the same as MM2 etc.
The LOAD "fname" [,R] and RUN "fname" both work
SAVE "fname" is not yet implemented
AUTOSAVE works but only as a way of inputting from the keyboard. Pasting into the window doesn't work and will probably never work but remember you are running on a full blown computer so you can just LOAD a file

I'll post versions here as I think useful. Don't expect any discipline - proper versioning etc.

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TIME$, DATE$, EPOCH, DATETIME$, and DAY$ functions added.

NB: TIME$ and DATE$ commands will not be included as time is derived from the system clock and we don't want to be messing around with that

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26/01
Lots more stuff implemented : text, longstring, settick, maths, sort

I've also massively reduced the CPU load. Very little now at the command prompt and just one fully active thread when a Basic program is running. The screen update rate is reduced to about 63Hz which means on a typical 60Hz refresh monitor there will be no impact. If you have a 120MHz monitor then every two frames may be the same but I think this is a price worth paying for reducing the CPU load.

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NOW with full GUI and Mouse support

You can interrogate the mouse with the mouse function
MOUSE(X) 'gets the x-coordinate
MOUSE(Y) 'gets the y-coordinate
MOUSE(W [,scale]) get the movement of the wheel since the last call of the function
Use scale to adjust the sensitivity by dividing the internal count by scale (default 1)
MOUSE(L) 'gets the left  mouse button (1 is pressed)
MOUSE(M) 'gets the middle  mouse button (1 is pressed)
MOUSE(R) 'gets the right  mouse button (1 is pressed)
MOUSE(D)
D This allows you to detect a double click of the left mouse button .
The algorithm say the two clicks must occur between 100 and 500
milliseconds apart. The report via MOUSE(D) is then valid for 500mSec
before it times out or until it is read.

NB: MM+ TOUCH() function is automatically translated to MOUSE() by the firmware, see the PicoMite manual for the touch GUI sub-functions

mouse command
MOUSE LEFTDOWNinterrupt [,RIGHTDOWNINTERRUPT] [,LEFTUPINTERRUPT]

e.g.

```
MOUSE leftint, rightint, leftup
do
 if mouse(D) then print "Double click @ ",mouse(x),mouse(y)
loop
sub leftint
 print "left down @ ",mouse(x),mouse(y)
end sub
sub leftup
 print "left up @ ",mouse(x),mouse(y)
end sub
sub rightint
 print "right down @ ",mouse(x),mouse(y)
end sub
```

OPTION MOUSE is a CMM2 command. This is windows. The mouse is always there

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28/01
Timer function now accurate to 0.1uS and reported as a floating point number of milliseconds. Settick and pause remain as-is and have an accuracy of around +/- 16mSec. I could fix this but only by having a thread running continuously reading the high resolution timer. If you need accurate timing you can have the tight loop in basic with the TIMER function

timer=0:do:b=timer:?b-a:a=b:loop

Some other reported things fixed

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29/01
I've had to rewind the work on ARGB as I got into a real mess. The attached is a tidy version of the previous with the new timer and various bug fixes. I don't see an edit issue but if you do you need to let me know how to create it

---
Caps lock should now work and I've fixed a colour error in the GUI commands plus all the prep work for the Page command and transparency is now done. This was a big job because in the old code -1 = &HFFFFFFFF which was a coded value for the text command whereas in ARGB &HFFFFFFFF is non-transparent white. This meant all colour values in the entire code needed changing to 64 bit integers from 32 and there are hundreds of them. The CMM2 didn't have this issue as there are only 15 transparency levels so &HFFFFFFF  (7 F's) isn't the same as &HFFFFFFFF (8 F's)

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30/01
New version pa5

Still no keyboard language support but most of the infrastructure is now there.
This version will automatically re-initialise the options on first run as the structure has changed.

Now working:
keyboard repeat
on key (both variants - see PicoMite manual)
option list
Caps lock (properly I hope)
F1 now set to FILES, F5-F9 are user settable as per PicoMite
KEYDOWN function as per CMM2

To set the keyboard repeat use OPTION KEYBOARD lang, repeatstart, repeatrate
The rates are in milliseconds. The language is ignored but is currently one of
"US", "FR", "GR", "IT", "BE", "UK", "ES"

Remember:
Use OPTION DEFAULT MODE to select the screen format on running. This automatically chooses a sensible font for the screen size. You can't select the small screen sizes which make editing silly

Use OPTION DEFAULT FONT number, scale to select the font on running. This overrides the automatic

selection caused by DEFAULT MODE

Valid Default modes are:

Default mode 8", "800x600"
Default mode 8", "640x480"
Default mode 9", "1024x768"
Default mode 10", "848x480"
Default mode 11", "1280x720"
Default mode 12", "960x540"
Default mode 15", "1280x1024"
Default mode 16", "1920x1080"
Default mode 18", "1024x600"

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31/01
pa6

This should support UK, US, FR and DE (GR) keyboards
Please report any success and/or issues
I have an issue with the ^ character on FR and DE keyboards as it doesn't seem to produce any recognisable keycode. Until I fix this:
on the German keyboard you can use SHIFT-3
on the French keyboard you can use SHIFT-$

---
New version with more improvements to keyboard/language.

US is tested with onscreen keyboard and works perfectly for me - please could someone confirm with a real keyboard

For France and Germany accent keys (e.g. circumflex) need double click as per normal use to give a single character. This needed  a time-delay to get working. If you have a slower PC and it doesn't work let me know and I'll increase the timer

Note back single quote will always show as a degree-symbol as this is what is set in the fonts

UPDATE 15:00 UTC Swedish keyboard added

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pa9

Hopefully fixes the last bits on the FR and DE keyboards
You can now run MMbasic with the name of a program to load and run

e.g. from a DOS BOX

mmbasic benchmark

will run the program "benchmark.bas". If the program doesn't exist then MMBasic will just start

normally at the command prompt

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pa10

You can now paste into autosave using ctrl-V
You can also paste into the editor but only a single line will be accepted

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01/02
All colours are now ARGB8888. If you use the direct hex code then you must set the A.
The RGB function can take 1, 3, or 4 parameters. In the case of 3 parameters it assumes A=255 and of course defined colours like "RED" have A set to 255

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pa11

Most file handling commands and function are now there and work based on very cursory testing.
Use LIST COMMANDS and LIST FUNCTIONS to see which

The big thing missing is the DIR$ function and sorting out the FILES command. Unfortunately, windows doesn't support the "dirent.h" header I used in the Raspberry Pi so they will need coding from scratch using windows calls.

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pa12

Last update for a few days

lots of good file stuff

FILES command and DIR$ as per the PicoMite manual
mm.info(default path)
mm.info(filesize fname$)
mkdir
rmdir

tested with ZMIM with minor tweaks. zmim directory must be in default path

dim ss$(5) 'omit the length

Sub main()
Local i. old_dir$, state, s$
ss$(0)=mm.info(default path)+"zmim"

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06/02
Lots more stuff

MEMORY command, FRAMEBUFFER command, PAGE command, IMAGE command (rotate, resize, warp etc), LOAD JPG, LOAD BMP all as per CMM2 except jpg is more flexible and can overlap the screen

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08/02
pa14

Full sprite engine and blit from CMM2 now available. Framebuffer closed on change of mode. Bug in closing files fixed

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11/02
pa15

Starting on serial. First step to identify com ports available
Use:
LIST COM PORTS

to get a list of all ports available

use function

COMPORT(portno)

to check if a particular port exists

e.g
? COMPORT(22)

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12/02
pa16

Support for serial comms (any or all of com1 - com63)
Fix for SAVE IMAGE
Fix for list ports if no ports available

Parameters available for serial comms - syntax same as all other MMbasic

Baudrate as specified, default if not 9600

Receive Buffer size as specified, default if not 256

Receive Interrupt can be specified - default no interrupt

Receive Interrupt count can be specified - default 1

Parity - default none
Available: EVEN, ODD, MARK, SPACE

Data Bits - default 8
Available 7BIT

Stop bits - default 1
Available S2, S1P5 (1.5bits)

INV not implemented
RS485 not implemented

NOTE serial output is currently blocking and the time taken will depend on the baudrate

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pa17

Includes the 3d engine from the CMM2. See video
Fixes bug where the page command caused subsequent edits to not show the status line

pa18 ?

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13/02
pa19

Should fix the framebuffer issue

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pa20

Editor replaced with the CMM2 editor. Definite pre-alpha status

Not implemented yet:
mouse support
F7
Shift-DEL
Shift-TAB
F12
First time after starting you must specify the filename to be edited e.g
edit "myfile.bas"

Afterwards in the session it will remember the last file edited if saved (not if you esc) and you can just use
edit

use OLDEDIT to use the original MM2 editor

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14/02
F7, shift-del, shift-tab now all working in the editor (see CMM2 manual for details), just mouse support to complete

typing edit without a parameter will open the currently loaded file or give an error if nothing loaded. To create a new program simply type EDIT "newfilename" and the editor will open with a blank screen

For those who haven't used the CMM2 editor before, the big advantage is that the new editor supports horizontal scrolling allowing lines longer than the screen size to be edited properly

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pa21

Mouse now integrated into the editor with same functionality as CMM2 e.g navigating and selecting text for cut-and-paste.
Cut and paste in the editor now uses the Window clipboard so you can paste external text into the editor or get text from the editor into an external application.
Ctrl-V no longer functional in autosave - but will return soon

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15/02
pa22

Enables double press of home and end in editor to move to start and end of the file

AUTOSAVE fname$

The filename is now mandatory as on the CMM2. You can now paste into autosave using CTRL-V. When you exit autosave with F1 or CTRL-Z. the file is saved and the program is loaded ready to run. The "last file edited" is updated so you can edit the file without specifying the filename.

In addition if you exit with F2 the file is immediately run

If you exit with CTRL-C no file will be created

LOAD DATA now implemented but completely untested.

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16/02
Fix for the various drawing issues caused by an over-enthusiastic bulk edit

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17/02
I've put a true BREAK into the firmware. WIN32 API has a routines specifically for starting and stopping the break condition. I've set the break at 20 bit periods

Current colours are:
WHITE YELLOW LILAC BROWN FUCHSIA RUST MAGENTA RED CYAN GREEN CERULEAN MIDGREEN COBALT MYRTLE BLUE BLACK GRAY GREY LIGHTGRAY LIGHTGREY ORANGE PINK GOLD SALMON BEIGE

```
MODE 1
CLS

TEXT 10,10 , "WHITE     "+HEX$(RGB(WHITE),4), ,1,1,RGB(WHITE)
TEXT 10,30 , "YELLOW    "+HEX$(RGB(YELLOW),4), ,1,1,RGB(YELLOW)
TEXT 10,50 , "LILAC     "+HEX$(RGB(LILAC),4), ,1,1,RGB(LILAC)
TEXT 10,70 , "BROWN     "+HEX$(RGB(BROWN),4), ,1,1,RGB(BROWN)
TEXT 10,90 , "FUCHSIA   "+HEX$(RGB(FUCHSIA),4), ,1,1,RGB(FUCHSIA)
TEXT 10,110, "RUST      "+HEX$(RGB(RUST),4), ,1,1,RGB(RUST)
TEXT 10,130, "MAGENTA   "+HEX$(RGB(MAGENTA),4), ,1,1,RGB(MAGENTA)
TEXT 10,150, "RED       "+HEX$(RGB(RED),4), ,1,1,RGB(RED)
TEXT 10,170, "CYAN      "+HEX$(RGB(CYAN),4), ,1,1,RGB(CYAN)
TEXT 10,190, "GREEN     "+HEX$(RGB(GREEN),4), ,1,1,RGB(GREEN)
TEXT 10,210, "CERULEAN  "+HEX$(RGB(CERULEAN),4), ,1,1,RGB(CERULEAN)
TEXT 10,230, "MIDGREEN  "+HEX$(RGB(MIDGREEN),4), ,1,1,RGB(MIDGREEN)
TEXT 10,250, "COBALT    "+HEX$(RGB(COBALT),4), ,1,1,RGB(COBALT)
TEXT 10,270, "MYRTLE    "+HEX$(RGB(MYRTLE),4), ,1,1,RGB(WHITE)
TEXT 10,290, "BLUE      "+HEX$(RGB(BLUE),4), ,1,1,RGB(BLUE)
TEXT 310,10 , "BLACK    "+HEX$(RGB(BLACK),4), ,1,1,RGB(WHITE)
TEXT 310,30 , "GRAY     "+HEX$(RGB(GRAY),4), ,1,1,RGB(GRAY)
TEXT 310,50 , "GREY     "+HEX$(RGB(GREY),4), ,1,1,RGB(GREY)
TEXT 310,70 , "LIGHTGRAY "+HEX$(RGB(LIGHTGRAY),4), ,1,1,RGB(LIGHTGRAY)
TEXT 310,90 , "LIGHTGREY "+HEX$(RGB(LIGHTGREY),4), ,1,1,RGB(LIGHTGREY)
TEXT 310,110, "ORANGE   "+HEX$(RGB(ORANGE),4), ,1,1,RGB(ORANGE)
TEXT 310,130, "PINK     "+HEX$(RGB(PINK),4), ,1,1,RGB(PINK)
TEXT 310,150, "GOLD     "+HEX$(RGB(GOLD),4), ,1,1,RGB(GOLD)
TEXT 310,170, "SALMON   "+HEX$(RGB(SALMON),4), ,1,1,RGB(SALMON)
TEXT 310,190, "BEIGE    "+HEX$(RGB(BEIGE),4), ,1,1,RGB(BEIGE)

BOX 180,  5,100,20,1,RGB(WHITE),RGB(WHITE)
BOX 180, 25,100,20,1,RGB(YELLOW),RGB(YELLOW)
BOX 180, 45,100,20,1,RGB(LILAC),RGB(LILAC)
BOX 180, 65,100,20,1,RGB(BROWN),RGB(BROWN)
BOX 180, 85,100,20,1,RGB(FUCHSIA),RGB(FUCHSIA)
BOX 180,105,100,20,1,RGB(RUST),RGB(RUST)
BOX 180,125,100,20,1,RGB(MAGENTA),RGB(MAGENTA)
BOX 180,145,100,20,1,RGB(RED),RGB(RED)
BOX 180,165,100,20,1,RGB(CYAN),RGB(CYAN)
BOX 180,185,100,20,1,RGB(GREEN),RGB(GREEN)
BOX 180,205,100,20,1,RGB(CERULEAN),RGB(CERULEAN)
BOX 180,225,100,20,1,RGB(MIDGREEN),RGB(MIDGREEN)
BOX 180,245,100,20,1,RGB(COBALT), RGB(COBALT)
BOX 180,265,100,20,1,RGB(MYRTLE),RGB(MYRTLE)
BOX 180,285,100,20,1,RGB(BLUE),RGB(BLUE)
BOX 480,  5,100,20,1,RGB(BLACK),RGB(BLACK)
BOX 480, 25,100,20,1,RGB(GRAY),RGB(GRAY)
```

```
BOX 480, 45,100,20,1,RGB(GREY),  RGB(GREY)
BOX 480, 65,100,20,1,RGB(LIGHTGRAY),RGB(LIGHTGRAY)
BOX 480, 85,100,20,1,RGB(LIGHTGREY),RGB(LIGHTGREY)
BOX 480,105,100,20,1,RGB(ORANGE),RGB(ORANGE)
BOX 480,125,100,20,1,RGB(PINK),RGB(PINK)
BOX 480,145,100,20,1,RGB(GOLD),RGB(GOLD)
BOX 480,165,100,20,1,RGB(SALMON),RGB(SALMON)
BOX 480,185,100,20,1,RGB(BEIGE),RGB(BEIGE)
```

DO:LOOP**ALPHA RELEASES**

16/02/2022
MMBasic for Windows V5.07.03a0

The MMBasic for Windows code is now officially past the pre-alpha phase and enters alpha. i.e. most of the functionality is now there and there are not too many reports of issues but there is still work to do.

The big change in V5.07.03a0 is support for proper transparency as per the CMM2

The mode command is changed as follows to follow the CMM2 as closely as possible:

MODE modeno [,alphaenabled] [,background colour]

By default alphaenabled is 0 and the background colour is BLACK

To use the second layer set alphaenabled to 1 and optionally choose a background colour

Unlike the CMM2 MMbasic for windows uses full ARGB8888 colour in all modes and has a transparency value (A) of 0-255

When you change the mode to alpha by default you are still writing to page 0 and it is cleared to RGB(BLACK)which is opaque. If you want to see the background colour pixels on page 0 must be written with a transparency of less than 255. Use CLS RGB(BLANK) to clear a page to completely transparent.
If you set to write to page 1 this will overlay page 0 and the background to the extent that the alpha value of the pixels on PAGE 1 are set (between 0=transparent and 255=opaque).

Note when playing with this at the command line you can get very confused so it is easier to understand what is happening with a very simple program.

```
mode 14,1,rgb(magenta) 'set into 2 layer mode with the background set to magenta
font 3
print "Click to get focus"
mouseclick
print "now we will clear page 0 to blank"
print "click to continue"
mouseclick
cls rgb(blank)
colour rgb(black),rgb(blank)
print "This text is written on page 0 with transparent backgound"
```

```
print "click to continue"
mouseclick
print "Now we will write to the top page"
print "click to continue"
mouseclick
page write 1
cls rgb(blank)
sprite loadpng 1,"apple"
sprite write 1,50,10,1
sprite transparency 1,128 'change the transparency of the sprite
sprite write 1,200,10,1
page write 0
print @(0,mm.info(fontheight)*4)"You can see the page 0 text through the right hand apple"
print
print "Click to exit and remember to click again to get focus"
mouseclick
sprite close all
mode 14
colour rgb(white),rgb(black)
end

sub mouseclick
do
loop until mouse(l)
do
loop until not mouse(l)
end sub
```

Finally a note on the RGB function.

RGB(COLOURNAME) will return a fully opaque representation of that colour
RGB(red, green, blue) will return a fully opaque representation of that colour
use RGB(red, green, blue, trans) to set a partially transparent colour

If you must, you can use numerical values directly as colours e.g CLS &H80607080

This will set the transparency to &H80, the blue level to &H60, the green level to &H70 and the red level to &H80. Note that red and blue are reversed compared to the CMM2 if a direct numerical value is used in this way i.e ABRG8888

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V5.07.03a1

Forgot to mention above right clicking in the editor on the first character in the line is the same as HOME. Right clicking after the last character in a line on on the last character if the line exceeds the screen width is the same as the END key

This version includes the ability to send a BREAK "character" on the serial port.

e.g.

```
OPEN "COM1:9600" as #1
PRINT #1,BREAK
```

This will send a break which is set to be 20 bit lengths of the port held in the zero state. I've even tested it on the scope and it works

---
"I was expecting MMBasic-4-Windows to mimic the CMM2"

Not aware of any significant differences. The mode command is slightly different because there is only one colour depth in windows. On the CMM2 the different colour depths are there because of display performance issues and not because they are a preferred approach.

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