

programmers

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Chapter 1

programmers

1.1 SuperDark prog

Writing your own modules for superdark:

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Info
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Debug
The info text
More info
Writting ASM modules
Problems

Important info For old modules!

1.2 Overview

I Overview:

How to add modules to SuperDark.

- It is not very difficult to add your own module to Superdark, but you have to read carefully this doc, because there is some important things to understand!

You have to do four things to add a new module in SuperDark:

- * Create your own dark() procedure, that's the procedure called at screen blanking. That's the biggest part of the job.
 - * Add the proc_init(),proc_save(),proc_end() function. Usually, these function are empty. But for special purpose, you could fill them, look at the doc.
 - * Add a my_gadg[] array. This array is used to create the param window, but also to read and save parameters. Very powerful, and easy to use after you've read the doc!
-

* Create an info text. This should be easy, no?

* You can Debug using SDprintf()

Notes:

* YOU MUST link your module with the proc_main.o object. Proc_main will make some important initialisation, contain important function for you!

* I use some special keyword of the Lattice compile, like __saves. If you don't have them, check your compiler's documentation. But if you don't use callback procedure with button, you don't need this.

The simplest way to add a new module is to take a look at the module named "rien.dark.c", this module does absolutely nothing, but you can use it at a skeleton program.

Note: You should use the function DCloseScreen() instead of CloseScreen(). This function will keep the last opening screen in random mode. So in this mode, the workbench screen will not appears between two modules.

1.3 Info

II What is a module for SuperDark ?

- It's an executable program, loaded by SuperDark.
- You have link it with proc_main.o.
- Proc_main.o will make initialisation and wait for a signal from superdark, and then will call your dark function.

But:

- You can't do ANY printf
- You can't run it alone

1.4 Dark function

III

The dark() function:

This function is called by proc_main when the screen should be blanked. You can ask for a copy of the frontmost screen. To do this, look at the proc_init() function.

So you can put what you want here, but remeber these limitations:

- Don't use any printf in your program
- Don't make any global auto-initialised variable. This may be cause some problems if you don't see exactly what happens. Because when your dark() function is called two time, the global are not reset to her initial value. So if you use global var and change their value, be careful.
- Try to don't use the whole CPU time. Use WaitTOF(), Delay(), Wait()... But you are a good programmer, so you know what to do!

To test if your function have to exit, you have the tst_end() function.

This function will return TRUE if you have to exit, or FALSE if you have to continue.

Example:

```
while(tst_end()==FALSE){
    do what you want...
}
```

The other function is wait_end(). This function will only return at the end of the blanking time. ↵

A new function is available since superdark v2.0, this function is called SDWait() (like SuperDarkWait).

```
ULONG SDWait(ULONG sigmask);
```

sigmask is mask of the signal you are waiting for. SDWait will return if one of your signal is available. It's exactly the same than the exec Wait() function, but this function also do some internal SD function (like CPU watchdog), so IF you want to use a wait function, YOU HAVE to use this function.

Return code: Since SuperDark v2.0, the dark function allow a return code. This code is zero if everything is ok, non zero otherwise. This will be used by the main superdark function to give some information to the user. So try to give a return code with your module.

1.5 proc_init()

IV proc_init(), proc_save() and proc_end()

proc_init() is called after your module have been loaded. You can do special initialisation here, but don't use too much memory. That's here that you told if you want a copy of the current frontmost screen be opened for you. To do this, you have to do this:

```
p_data_proc->type_screen=SCR_GIVEN;
```

You can also tell to superdark that your module should only run with superdark for WB2.0 or higher.

```
p_data_proc->code_ret=DARK_WB_20;
```

proc_save() is no more used, but is still here for compatibility...

proc_end() is called when the module have to be removed from memory. You can free what you've allocated in proc_init().

1.6 MyGadg

V The my_gadg array....

This one of the most powerful of superdark. Each module can have a parameter window. To do this, you have to define this window, but in a special manner.

This array is an array of type `tom_gadget`. This is the definition of the type `tom_gadget` (from `includes/tom_gadget.h`) :

```
typedef struct  tom_gadget{
    char  *GadgetText;    /* Text of the gadget on screen. */
    type_gadget type_gadg; /* The type of the gadget, see later */
    short int LeftEdge,TopEdge; /* position      */
    short int Width,Height; /* size      */
    short int value;    /* value !      */
    short int d1,d2,d3; /* Used for special purpose.... */
    char  *p_data;    /* Used for special purpose.... */
    struct  Gadget  *p_gadg; /* Internal use only      */
};
```

Note that the four standart gadget "ok","test","cancel","help" are automaticly added!

Let's see these field:

`char *GadgetText:`
 So it's the text of your gadget in the configuration window, but also of the corrspeonding value in the TOOL TYPE list. Yes, because SuperDark se these informations to save the configuration as ToolTypes in the .info of the module.

You can use shorcut, by using `'_'`. Example, a gadget named TEST can have the shortcut T if his name is:

`"_TEST"`

`type_gadget type_gadg:`

Define the type of the gadget. These type are availaible:
 (note that they are also availble on WB1.3 for the most of them)

The following type are available(and look at the exemple:

```
END_LISTE
BUTTON
SLIDER
CHECKBOX
MX
CYCLE
LISTVIEW
OWN_GADGET
STRING
INTEGER
SCREEN
FONT
DATA_STRING
IMAGE
```

`LeftEdge,TopEdge,Width,Height:`

Position and size of the gadget...nothing else to say!

1.7 end_liste

END_LISTE:

This is not really a type, but each tom_gadget array should end with this value! Remember it!!!

1.8 button

BUTTON:

A simple button. You can define a function called when the button is pressed, by giving a pointer to this function in the p_data field.

1.9 slider

SLIDER:

A normal slider. The direction of the slider (horiz/vertical) is defined by the ratio Width/Height. If Width is > Height, this will be an horizontal slider, otherwise it's an vertical one.

- * value must contain the initial value of the slider,

- * d1 and d2 must contain the range of the slider

- * if p_data is not nul, it must contain a pointer to the variable wich will receive a copy of the current value of the slider.

1.10 checkbox

CHECKBOX:

Checkbock gadget.

- * value contain the initial value, and will be re-actualised,

1.11 mx

MX:

Multiple choice gadget.

- * p_data must contain a pointer to an array of char
example: p_data={"Choice1","Choice2","Choice3",NULL}

- * value contain the initial value, and will be re-actualised,

1.12 cycle

CYCLE:

Cycle gadget.

Same kind of configuration than the MX gadget.

1.13 listview

LISTVIEW:

Listview gadget.

* p_data must contain a pointer to a List structure. the name of each node of the list will be shown on screen.

* value contains the position of the initial selected value, and will be re-actualised.

1.14 own_gadget

OWN_GADGET:

Very special purpose gadget!!!!

No time to describe it now...sorry.

I just can say that it's used to create other type of gadget than the current available.

1.15 string

STRING:

String gadget

* p_data must contain a pointer to a buffer of char. This buffer will contain the value of the string gadget.

* dl MUST CONTAIN the size of the buffer.

1.16 integer

INTEGER:

Integer gadgt.

*value contains the initial value, and will be re-actualised,

*dl contains the max number of digits for the number.

1.17 screen

SCREEN:

High level gadget....

This gadget will only be active if you have WB3.0, or if reqtools.library v38 or higher is present on your system. It allow you to choose a screen resolution, size, and overscan value, by using the screen requester from the reqtools lib.

- * value contain the initial Overscan mode of the screen, and will be re-actualised. Look at intuition/screens.h
- * d1 contain the initial Width of the screen, and will be re-actualised
- * d2 contain the initial Height of the screen, and will be re-actualised
- * d2 contain the initial Depth of the screen, and will be re-actualised
- * p_data contain the initial Mode ID of the screen, and will be re-actualised

Note:

If d3 (depth) is null, this mean that none of the value is significative.

1.18 font

FONT:

The second high level gadget....

It allow you to choose a font, include size and attributes.

- * p_data is a pointer to a TextAttr structure.
IMPORTANT NOTE: This text attr must have the field ta_Name initialized with a pointer to a string buffer, with enough space to put the biggest name of the available font

1.19 data_string

DATA_STRING:

This data type is only used for configuration. I mean than you won't see anything on configuration window, but a string will be saved and loaded in the configuration file.

1.20 image

IMAGE

With this data, you can include an image in your parameter window. Just put a pointer to an image structure in the p_data field

1.21 inv_checkbox

INV_CHECKBOX:

This stand for "invisible checkbox". This type of gadget IS NOT a gadget! This will do nothing on screen, but it's just used to save/load a bool value. This value can only be changed by user using the info menu of the workbench on the superdark.info.

1.22 exemple

Example: we want to make a parameter window, with three things:

- a checkbox,
- a slider, wich can have value from -10 to 50
- a "screen" button.

```
struct tom_gadget my_gadg[]={
{"_Check it"      ,CHECKBOX  , 100, 10, 10,10,0,0,0,0,0},
{"_slide it"     ,SLIDER   , 100, 25, 10,10,10,-10,50,0,0},
{"s_screen"      ,SCREEN    , 200, 10, 50,10,0,0,0,0,0}};
```

The parameter window will look like this:

```
-----
|               |
|   _   _       |
| Check it | |   |screen|   |
|   _   _       |
|   _   _       |
| slide it | |   |#   |   |
|   _   _       |
|           |
|      Ok   Test   Cancel   Info |
|           |
|-----
```

and when you press OK, you'll see in the tootype of your module:

```
CHECK IT=FALSE
SLIDE IT=20
SCREEN  =320 x 256 x 3 ID=21000 OVSCN=0
Nice no?
```

1.23 Info_text

The information text:

It's the text show when you press the "Info" button. It's just an ascii string, named p_text_info. Example:

```
char *p_text_info=
```

```
"  Hi evrybody    \n"
"now I can do my  \n"
"own module for the great\n"
"  SUPERDARK!\n";
```

Note the \n at the end of each line

1.24 example

Sample code:

First, take a look at the sample blankers source code. This should give you some information. Here is a simple exemple of a blanker. This blanker do absolutly nothing!:

```
/* --- start of code ---- */

#include <exec/types.h>
#include <exec/ports.h>
#include <dos/dos.h>
#include "/includes/struct.h"
#include "/includes/tom_gadget.h"

extern struct RastPort *rp;
extern struct Screen *s;
extern struct appel_proc *p_data_proc;

char *name_module="vide.dark";
char *p_text_info=
"Rien\n"
"This programm do nothing\n"
"It's a skeletton for your own\n"
"purpose";

/* An empty list of gadget....*/
struct tom_gadget my_gadg[]={
    {0, END_LISTE, 0, 0, 0, 0, 0,0,0,0,0}};

/* Put here your own code */

void dark()
{
    wait_end();
}

/*****
/* These 3 function have to be here, even if they are empty */
*****/
void proc_init()
{
}
void proc_save()
{
}
void proc_end()
```

```
{
}
```

```
/* --- end of code ---- */
```

To create a module, do this, using lattice (suppose your file name is my_blanker.dark):

```
lc my_blanker.dark.c
blink FROM LIB:c.o proc_main.o my_blanker.dark.o LIB $(LD_LIBS) SC SD TO ↵
    my_blanker
```

Then, configure "Dark directory" in superdark to the directory where is this blanker. So you should see it in the file list modules.

1.25 debug

Now, a little help to debug your module....

- First, try to make your 'effect' alone, without using superdark. Then, put it as a blanker.

```
SHOW_INFO:
```

```
-----
```

```
Usage: show_info
```

- There is an utility program, called show_info. This program, open two window. In the first window there is some not so interesting informations, but the second window is a text window. And you can send text to this window, by using a SDprintf() function, like this:

```
SDprintf("Hello, I'm in my module, and the value is:%ld\n",toto);
```

NOTE: DO NOT USE printf, use SDprintf

NOTE: The function use the exec RawDoFmt, but this last function only work with LONG value, so use %ld,%lx, instead of %d,%x, etc...

1.26 more

some more informations:

- CPU timeout:

Since v2.0, there is a check to see if there is enough cpu time to run the blanker. This features will automaticly be added using the last version of proc_main.o. The older version (module which maybe are not recompiled) will not have this fetures, but will run correctly.

This function work fine if you use the tst_end() or wait_end() functions. If you don't use them (REALLY? Strange...) or IF YOUR PROGRAM SHOULD ABSOLUTLY NOT HAVE THIS "CPU TIMEOUT" WATCHDOG, add this line in your proc_init() function:

```
p_data_proc->enable_watchdog=FALSE;
```

- Version:

Since V2.0 of superdark, there is a version number available for the module. This version can be found in `p_data_proc->version` (look at file "struct.h"), and revision number is in `p_data_proc->revision`. So first version available will be version 2, revision 0.

This prevent some module to use some features not available in older version of superdark.

1.27 ASM

I've just talk of C, but the module can be made in any langage. You can write an ASM module. But you still have to link it with `proc_main.o`. You can do this using the great `devpac` assembler. But there is no `tom_gadget.i`, only `tom_gadget.h`. That's why you could use the same method than me: make a c program where there is evrything except the `dark()` function, and then put the `_dark()` function in an asm program, and them link evrything!

Just take a look at the plasma sourcecode, in the full superdark distribution.

1.28 Problems

VI If it doesn't work....

Hum....take a look at the other sourcecodes in the disk

If this still doesn't work, you can send me you module and I'll try to make it work....

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1.29 Old_Versions

This is very important:

If you've made a module for superdark less then 2.1 (1.2,1.3..to 2.0b)
YOU HAVE TO RECOMPILE IT USING THE LAST proc_main.o. Because the
communication method have changed! If you don't do this, your old
module will not work!!!!