



## The easySIM feature

easySIM is a PC simulator which is part of the easyGUI package. It is, in essence, a special display driver working in the Windows 32 bit API environment, instead of driving an embedded display in the target system.

### easySIM explained

A lot of our customers want to have their target system running on a PC, for demo, simulation, etc. It is of course not possible to just run a target system code on a PC, because the target system normally contains lots of hardware specific code, but in many instances it is possible to create a workable system.

However, the display part will not work, because the PC display is far removed from the typical embedded display controller/display glass. Therefore a new display driver is needed, which can utilize the PC display as the output medium, and this is done by easySIM. Some customers just use the easySIM files more or less as supplied, while others build much more functionality on top of the supplied project, to make it look and function almost like the target system, perhaps writing simulation code for hardware parts missing in the PC environment.

So, a suitable C++ compiler generating PC applications is used, instead of the usual embedded compiler and hardware. The easyGUI library code is the same, except for the display driver, which is specially made for the PC screen. The easyGUI project file (\*.gui) is also the same, in fact your easyGUI project can be used for both the real target system and the PC simulator. The only difference is selecting "PC simulator" output instead of "Target system" in the C code generation window (F11), as explained in the user manual.

The easySIM PC simulator is delivered in three different versions, suitable for:

- Microsoft Visual Studio 2003 (or higher) C++ compiler for Windows.
- Borland C++ Builder 5 (or higher) C++ compiler for Windows.
- DEV C++ 4.9.9.2 (or higher) GNU compiler for Windows. This product is free, if used under the license rules of the GNU General Public License. Please look at <http://www.bloodshed.net/devcpp.html> for further information.

The final executable will look almost the same, no matter which compiler is used. The display window contents will be 100% identical across compilers, and 100% identical to the target

system display output. Colors will however look slightly different, because of the different types of hardware.

The layout of your user interface in easyGUI is not influenced by the selected target, be it PC or embedded platform. You must of course write code in the easySIM source code, just like writing code in your embedded source code, in order to control easyGUI, but the functions are exactly the same, because the library is the same. In fact, much code can be copied directly from your embedded source, or vice versa.

## easySIM advantages

There are many ways of utilizing easySIM:

- Testing GUI designs at an early stage. Testing in the correct resolution and color depth is vital for judging whether GUI design elements will work as intended.
- Creating simulator executables for marketing, sale, service, manual writing, etc.
- Developing the full GUI before actual hardware is at hand.

The last topic, developing full GUI before actual hardware is at hand, can substantially shorten development times. The GUI code is often at least 50% of the final code in a modern embedded application, and even without hardware it is normally possible to develop the GUI part to 90-95% of its finished form. The drawbacks of developing the GUI without hardware is minimal, but of course execution speed and memory usage must be kept in mind, as the PC platform is vastly superior in both regards compared to almost any type of embedded hardware. Another advantage is time saved during debugging and testing, as no waiting is necessary for repeatedly uploading code to the target system.