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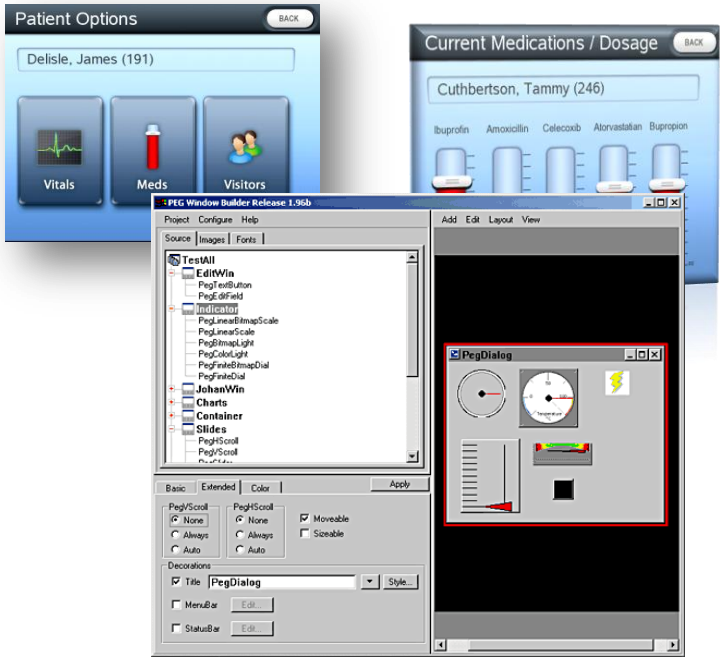

LCD Controller Development Environment

Overview of the Development Environment

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- Available software and drivers from Epson*
  - API (Application Programming Interface)
  - Win32 Utilities (CFG, PLAY) (evaluation purposes)
  - Driver for Linux, WinCE with Source Code
  - Demo software
- 3rd party GUI tools available from multiple venders *

*availability differs device to device

- Evaluation board with target LCDC (Display panel to be added by user)
- USB board for link between evaluation board and PC
- USB driver for Windows

“Play” Utility

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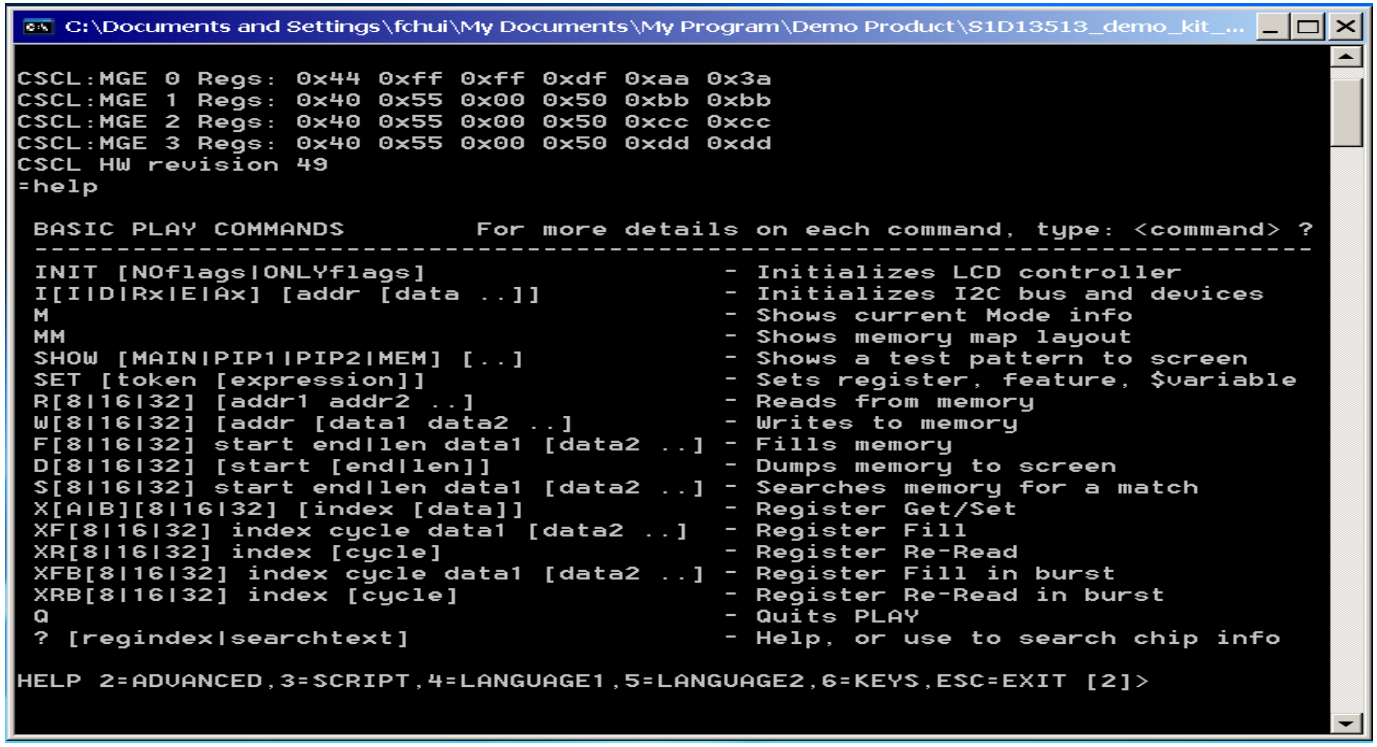
Establishes USB link between PC and LCDC Eva board

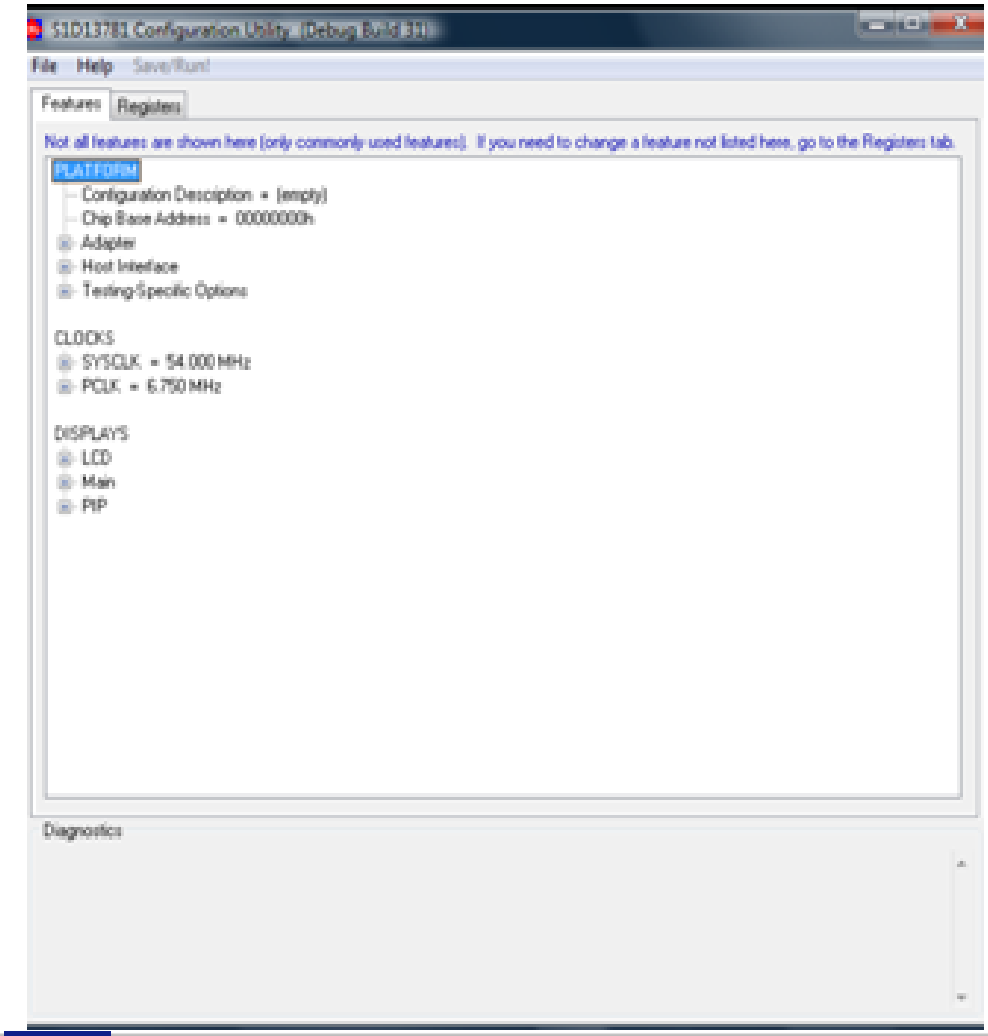


Features

- ❑ Load LCDC registers based on Configuration settings
- ❑ Access utility commands to test display
- ❑ Access utility commands to review register and memory contents and status
- ❑ Make change and debug if necessary

Configuration Utility

Intuitive interface allows easy LCDC configuration



Features

- ❑Set up LCD display panel configuration
- ❑Set up Memory configuration
- ❑Set up Clock configuration
- ❑Set up CPU interface configuration
- ❑Set up other features
  - ❑ host interface
  - ❑ clock
  - ❑ display
  - ❑ PIP

API (Application Programming Interface)

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- Sample C codes for fast implementation of chip functions and commands .
  - BLT – seBlt Data
  - Clock
  - Main Layer Functions
  - Hardware Control Layer
  - PIP - setRotation, AlphaBlend, Transparency
- Ready to be integrated and compiled with user program in development environment .
- Contains the top-level project files
- The structure of the 13781 API folders is as follows:

DOCUMENTATION contains 13781 API documentation/notes files

HCL Contains the Hardware Control Layer (register and memory reads and writes)

INCLUDE Contains the 13771 API header files (interface)

OS Contains the OS-specific coding layer

PCIBRIDGE Contains the Epson PCI Eval Card layer (used by OS)

SAMPLE Contains test/sample code demonstrating the API

DEBUG Contains pre-compiled sample applications

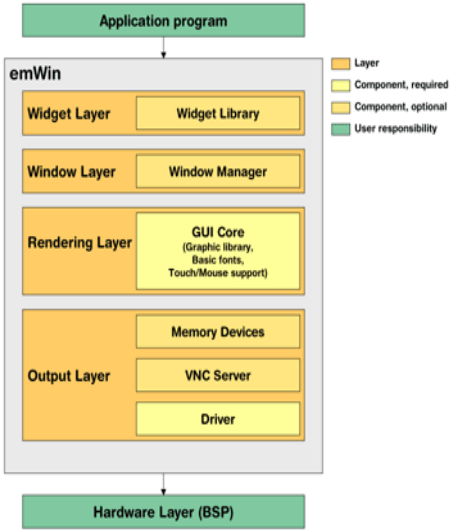
Segger - emWin

An efficient, processor- and LCD controller-independent graphical user interface (GUI) for any application that operates with a graphical LCD.

Compatible with single-task and multitask environments, with a proprietary operating system or with any commercial RTOS. emWin is shipped as "C" source code.
It may be adapted to any size physical and virtual display with Epson LCD controller and CPU.

Features

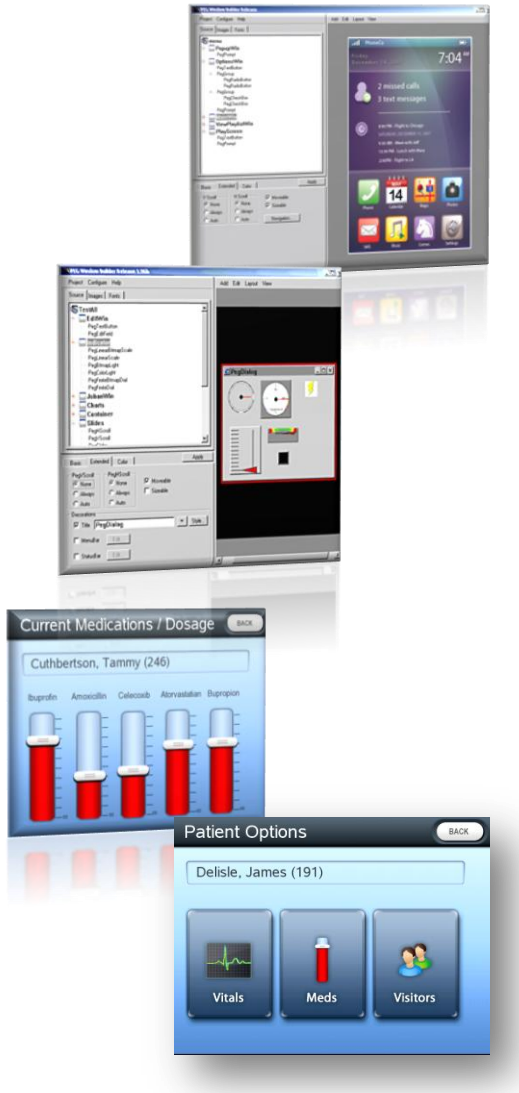
- ❑Any 8/16/32-bit CPU; only an ANSI "C" compiler is required.
- ❑Any (monochrome, grayscale or color) LCD with Epson controller supported
- ❑Any interface supported using configuration macros.
- ❑Display-size configurable.
- ❑Characters and bitmaps may be written at any point on the LCD,
- ❑Routines are optimized for both size and speed.
- ❑Compile time switches allow for different optimizations.
- ❑Virtual display support; the virtual display can be larger than the actual display.



Swell Software – PEG

Portable Embedded GUI and WindowBuilder visual design tool

PEG ProTM - for today's most sophisticated graphics and high-resolution displays
PEG+TM - high performance, small footprint GUI tool for full color LCDs up to 24 bits per pixel (bpp)
C/PEGTM - extremely efficient; designed for small displays, limited memory requirements & lower color depths

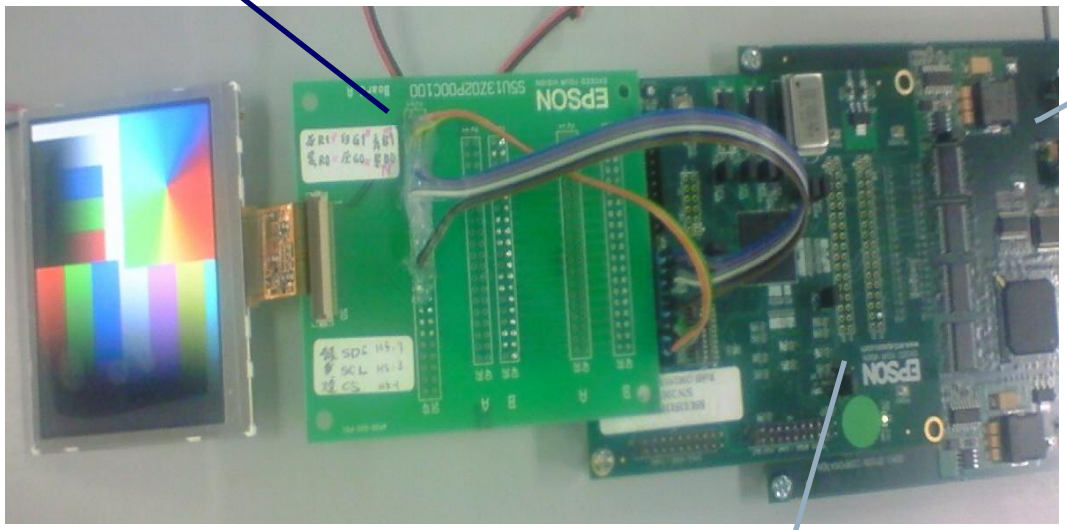


Key Features of PEG GUI software:

- Small footprint, fast execution speed
- 3 graphics libraries to choose from
- High color depth support, up to 32 bits per pixel
- Multilingual support, including UNICODE and UTF-8
- Includes PEG WindowBuilder desktop prototyping tool
- Touchscreen support available
- Supports the industry's leading processors and graphics controllers
- Runs stand-alone & with more than 20 embedded RTOSs

Evaluation System(S1D13781 example)

S5U13Z02P00C100
Interface board to the
LCD panel



S5U13U00P00C100
USB adaptor board
to the PC.

S5U13781P00C100
Evaluation Board