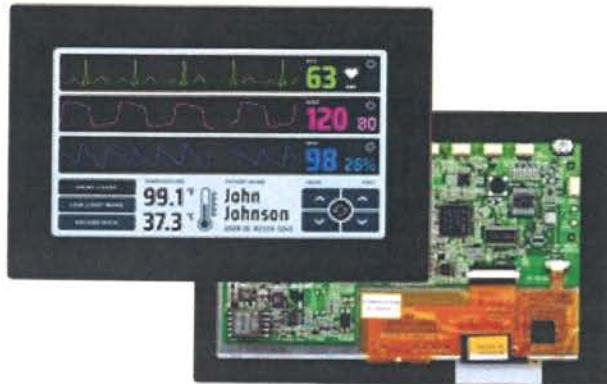


# Integrated solution for MMI



Emerging Display Technologies has developed a family of highly integrated Touch/Display solutions in sizes from 4.3” to 10.1” with different display resolutions called Smart Embedded.

Evaluation Kits have been released so the user can start development in a very short time and a download of the free TouchGFX Graphic Framework from STMicroelectronics is also available. FreeRTOS is used enabling Real Time control and ‘instant’ Start-Up in less than 100ms.

The Evaluation Kit includes the Smart Embedded Module with neutral printed Cover Lens, Control Board with Power Supply, Programming Adapter, Cables with connectors for Power, Programming and I/O Cables and a USB Memory Stick with Documentation and a Project example.

STM32F750 (200MHz) or STM32H750 (400MHz) Cortex-M7 MCU’s are used depending on resolution.

Flash (QSPI) sizes vary from 16Mb to 64Mb, depending on the resolution of the Display and 16MB SDRAM is used for Framebuffer(s).

The Evaluation Kit comes with following Interfaces: RS232, RS485, CAN, I2C, SPI, USB-OTG, GPIO and for some modules Ethernet/PoE. The Industrial interfaces can be used to connect to an existing system and I2C/SPI can be used to connect to all kind of Sensors, BLE, Wi Fi, LoRa modules etc.

Having a wide power supply input range of 7 to 36V makes it easier to integrate the module to the existing power supply unit if it would be used in a ‘mock up’ of a prototype of a new product.

The USB-OTG can be used for different USB Classes. A CDC class driver as well as a FAT FS has been developed making it possible to have Serial communication with a PC using a

simple USB-OTG to USB cable, and with another cable converter, a USB Memory stick can be used for storage or Field Upgrade.

On top of these Interfaces, the Control Boards have Board to Board Connectors with Ethernet / SD-Card and 3.3V UART signals so special functions can easily be developed for fast Proof of Concept without redesigning the whole board. The configuration of the signals is very flexible and can include UART, PWM and Event Outputs, GPIO as well as Analog functions and Interrupt Inputs.

The first Add-On module developed is a Bluetooth + SD-Card board that snap on the Control Board and the SD Card can be used for Storage and/or Field upgrade of the Application Software.

Application Templates for TouchGFX Designer have been developed for all On Board Interfaces which reduce the Software development time considerable.

The Evaluation Kit can be used as a tool for very fast proof of concept as well as rapid development of the real application since all low-level drivers has already been developed.



**Above:** Evaluation kit

For cost optimisation of a final solution, a Custom Control Board can be developed in cooperation with Emerging Display Technologies, optimising the Memory and Power Supply to the exact needs, eventually adding an SD-Card connector or USB type A for field upgrade and removing Interfaces that are not required - minimising the BOM Cost.

A final cost optimised solution can be delivered, programmed and tested to an agreed test specification with warranty for the whole product which is different for a solution built from parts from different suppliers for display, touch cover lens, cabling with added cost for transportation, stocking of the parts and assembly either in-house or a third part contract manufacturer.

Since the Evaluation Kits will be CE marked and in-house EMC test facilities exist for pre-compliance test, the risk of delays in the final CE marking of a new product has also been minimised.

Typical applications for Smart Embedded modules include: Electric Car chargers, the monitoring of battery, water and fuel levels, power distribution systems and fuel cell monitoring systems.