5” Format Arduino-Compatible Touch-Enabled Display Shield Delivers Abundance of Added Value

Superior IC technology heightens performance plus expanded interfacing enables connection with Arduino & mikroBUS™ related hardware

Having already seen strong market uptake of the initial *CleO* smart display solution for rapid development of human machine interfaces (HMIs), Bridgetek and FTDI are now expanding this product family to include a higher end version. Based on the widely-praised Embedded Video Engine (EVE) technology, the new *CleO50* shield has a larger 5.0” diagonal 800 x 480 pixel resolution TFT with built-in resistive touch screen, plus enhanced audio capabilities. As with the previous *CleO* solution, the *CleO50* relies on advanced semiconductor devices. To take care of processing tasks, as well as bridging between connected hardware and fast interface accessories (such as the camera module option), it incorporates an FT900 low power, performance-optimised 32-bit microcontroller with 8MBytes of on-board Flash memory. For this latest display solution, the graphics controller element has also been upgraded to an FT812 EVE IC, in order to support the larger, higher resolution screen and furthermore so that the *CleO50* can benefit from 24-bit colour depth and video playback capabilities. Another important new feature is the mikroBUS™ interface, via which the shield can connect to a vast array of different plug-and-

play ‘click boards’ from MikroElektronika and thereby add extra functionality as required (such as heart rate monitors, rotary switches, communication modules, real-time clocks, accelerometers, GPS transceivers, etc.), without the inconvenience of having to alter the hardware settings. The shield’s Micro SD card slot can accommodate both standard SD (up to 2GByte) and high capacity SD (4GByte to 32GByte) memory cards. A PWM audio output with in-built speaker amplifier ensures elevated audio quality.

“Through the *CleO* product offering engineers are provided with an intelligent TFT display platform on to which they can create HMIs that have more sophisticated features and greater operational effectiveness than would be possible with normal Arduino display shields, while still having all the advantages associated with Arduino when it comes to accessing a broad range of different add-on boards. With *CleO50* we are able to take this concept even further, bringing boosted performance, better interoperability and more scope for differentiation.” states Fred Dart FTDI Chip’s founder and CEO. “These units are suitable for everyone, from the most adept of engineers right through to complete beginners, with a comprehensive supply of education material and in-depth example projects to accompany them.”

To get more information on the CleO product offering there is a dedicated website: www.CleOstuff.com

Streamlined MCUs from Bridgetek Encompass Performance, Connectivity, Power Efficiency & Compactness

Bridgetek announces the introduction of a new series of Super-Bridge microcontroller units (MCUs) to complement the company's existing FT90x series. The new FT93x devices are able to offer identical performance levels, plus the same principal features and functionality, but in smaller, lower pin count packages that take up significantly less board real estate (resulting in a 40% footprint reduction). Each of them incorporates a proprietary 32-bit RISC-based FT32 core that is capable of delivering true zero wait state (0WS) operation while running at up to 100MHz. This allows these performance-optimised devices to achieve an impressive 3.1DMIPS per MHz computational capability.

Connectivity is a vital aspect of these MCUs. It has 4 independent SPI master channels, each capable of supporting single/dual/quad modes of data transfer. With a maximum data rate of 3.4 Mbit/s, their I^2C bus interfaces can be configured as either a master or a slave to fit requirements. Furthermore, a hardcoded D2xx engine contains all the device drivers and firmware required to facilitate USB implementation. The related peripheral controller supports both USB 2.0 high-speed (480Mbit/s) and USB 2.0 full-speed (12Mbit/s)

connectivity. The upshot of all this is that the members of the FT93x series effectively present engineers with complete system-on-chip (SoC) solutions that are unlike anything else on the market. Through these devices USB to multi-interface bridging can easily be accomplished. Use of exclusive, highly established bridging technology and widely proliferated drivers, means that no prior knowledge of USB is required to interface these MCUs to USB. Instrumentation, metering equipment, factory automation, data logging, display/human machine interface modules, environmental monitoring and machine vision are among the applications for which they are highly suited.

The new Bridgetek FT93x devices draw a current of 75mA (typical) when their processor cores are fully active and high speed USB data transfer is underway. Embedded with all of these space/power saving MCUs is 128kBytes of Flash memory and 128kBytes of shadow program memory, as well as 32kBytes of data memory. There is also a comprehensive on-chip data conversion resource available for these devices. They have a -40°C to 85°C operational temperature range enabling them to be deployed in challenging industrial environments.

Advanced HMI Development Modules Feature 5” WVGA Resolution Touch-Enabled LCDs & Audio Capabilities

New arrival on the embedded systems market Bridgetek has just introduced a series of development modules. These items of hardware are designed to assist engineering professionals as they strive to implement more sophisticated and functionality-rich human machine interfaces (HMIs) and ensure market differentiation. Based on the second generation of the multi-award winning Embedded Video Engine (EVE) devices, the modules provide engineers with a foundation on which to rapidly prototype, or even directly construct superior HMIs. They each have a 5.0” format 800 x 480 pixel TFT display capable of supporting both portrait and landscape orientations. A built-in audio amplifier is also included on these units so that an external 1W speaker can be attached to them.

The first 2 products in this new series are the ME812A-WH50R and ME813A-WH50C, which respectively utilise the FT812 and FT813 EVE advanced graphic controller ICs, and correspondingly support resistive and capacitive touch screens. Each of these modules behaves as a SPI slave,

consequently requiring use of a SPI Master in order to take care of microcontroller interfacing and system integration. Further modules that behave as USB devices, and can be accessed from a PC or any other form of USB host, will be added to the series shortly. The capacitive touch screen based modules offer multi-touch operation (with provision for up to 5 simultaneous touch points), while the resistive touch screen module allows touch operation through gloved hands (something of great value in industrial applications).

EVE graphics controller ICs combine display, touch and audio functionality within a single chip and take an innovative object-oriented approach to HMI implementation that is proving highly effective. It leads to more streamlined solutions that are simpler to create, with significantly lower component counts, reduced board space requirements, curbed power consumption, etc. The second generation EVE devices at the heart of these new development modules have greater pixel resolution than the previous EVE ICs, resulting in sharper image rendering and greater colour depth. They also have accelerated data transfer and image/video loading capabilities, enhanced video playback, plus expanded memory resources. All of the modules are supplied with a bezel that has 4 mounting holes to facilitate system assembly.

New FTDI USB 3.0 Bridging IC Supports Video Class Operation

Continuing to drive innovation in USB technology, FTDI Chip has now introduced a series of USB 3.0 UVC class bridge ICs. The company's FT602 devices support the streaming of video content from high definition camera equipment. This means that imaging systems which would have previously only been capable of delivering relatively low resolution material can gain substantially elevated video quality but still run at 60fps frame rates. Improved performance can be benefitted from while viewing captured imaging data via standard UVC enabled hardware and commonly used media player platforms (such as VLC Player). This ensures greater convenience - with minimal investment being needed to upgrade existing systems, or to design and deploy new systems from scratch. No custom drivers are required, thereby permitting straightforward plug-and-play implementation.

The FT602 series complements FTDI Chip's already available FT600 and FT601 product offerings, presenting development engineers with the industry's most comprehensive USB 3.0 portfolio. These latest devices are capable of providing both USB 3.0 SuperSpeed (5Gbps) and USB 2.0 High Speed

(480Mbps) interfacing. They each incorporate a 32-bit parallel FIFO interface for data streaming and a UART interface for control path configuration. Supplied in 76-pin QFN packages, they have a specified working temperature range spanning from -40°C to 85°C. Among the key applications for this series of ICs are surveillance/security, machine vision, home/building automation, metrology, real-time microscopy, etc.

“There are a myriad of different sectors where enhanced levels of video quality are now proving to be highly desirable. Low resolution video is simply no longer enough, as real-time examination needs to be carried out in much greater detail,” states Fred Dart, CEO and founder of FTDI Chip. “By adding a UVC enabled solution to our range of USB 3.0 interface ICs, we are well positioned to address this growing demand, accelerating the migration to high definition video systems, but at the same time mitigating any concerns about system cost effectiveness.” “Since USB first started to see widespread uptake, FTDI Chip has been at the heart of its technological progression. This latest IC introduction proves that we are still setting the pace as USB enters its next era,” he concludes.