TechBrief - Introducing VersaLogic ARM and Android Offerings

VersaLogic offers ARM-based platforms which support the Android operating system (OS). These systems are ideal for running many types of applications including, for example, Android human-machine interface (HMI) applications for industrial process control, kiosks, medical diagnostic equipment etc.

The Zebra and Tetra boards are ideally suited to serve in these HMI roles as they are both low power, and high reliability. These single board computers are production-ready and include standard I/O ports on board. This means that it is not necessary to design additional carrier or converter boards to turn on and operate. VersaLogic ARM-based single board computers are an ideal match for a touch screen interface and the Android operating system.

Background

The Android operating system was originally designed for mobile devices that use a touch screen as the primary input device. Based on a Linux kernel, Android is a popular operating system for mobile devices worldwide. Android is an open source operating system which has attracted many application developers and users. The majority of Android apps run on ARM based systems. Android support and application development exists for x86 systems as well. Android-based devices support hardware components normally found on mobile devices such as cameras, GPS, accelerometers, and other sensors. Google's developer introduction to Android can be found here.

Touch Screens for Embedded Systems

Many embedded systems can be effectively implemented using Linux or Windows OS versions, but there are situations where the touch-based Android OS makes sense – even more so when considering the robust Android UI development toolset. This is especially true if an existing Android app needs to run on a system. Touch screen interfaces are a ubiquitous part of modern life. People can quickly and efficiently interact with a system using touch screens,

Performance

The performance and responsiveness of an Android-based system is determined primarily by three hardware factors.

- The performance of the system processor
- The amount of system memory
- The size and resolution of the screen

Not surprisingly, faster processors will provide faster execution and be more responsive to user input. VersaLogic ARM-based products use the Arm i.MX6 family of processors, providing DualLite and Quad processors to power Android-based systems. The Zebra (EPC-2701) features the DualLite processor and the Tetra (EPC-2700), a Quad processor.

Tetra (EPC-2700)

Zebra (EPC-2701)

Android runs on a variety of screen sizes and resolutions. There is however, a relationship between screen size, resolution, system memory and performance. Typical tablets and phones are equipped with 4GB of RAM to accommodate multiple applications running as well as video and streaming demands. VersaLogic ARM-based systems come with several memory configurations, including a 4GB option. For smaller screens, 2 GB is usually sufficient and this is available as standard on these boards.

Evaluating VersaLogic ARM Offerings with Android

The VersaLogic Android evaluation system hardware and software components are typically available off-the-shelf. Combining these items in an evaluation kit allows a working Android system to be brought up in a matter of 15 minutes or less. This is a quick and easy way to demonstrate and evaluate the kind of functionality available with an Android / Arm combination.

VersaLogic offers an Android evaluation system with the following components:

- VL-EPC-2700 –EDK-EVAL Arm-based "Tetra" single board computer with 2GB RAM.
- 7" HDMI LCD 1024 x 600 touch-screen display, including power supply and HDMI cable
- Power supply
- USB hub and USB cables
- RS-232 cable
- Quick Start Guide with pointer to additional support materials available on the VersaLogic website

For more information or assistance with an Android / Arm evaluation system, contact VersaLogic at info@versalogic.com.