DKV5651

SBC5651 Vision Kit with CMOS Camera, Cables, LCD Display Plus Integrated Software and Sample Programs

Development Kit Features:

Firmware

- Linux BSP with U-Boot, Linux kernel, Ubuntu, or GNOME mobile
- Micro/sys' Vision Layer integrates powerful tools, libraries and sample programs
- Micro/sys' Yocto recipe enables customer to create custom Linux distribution for application

Software

- Easy access to OpenCV and GStreamer
- ARM® NEON™ GPU configurable for multimedia apps
- Sample application programs

Hardware

- SBC5651 single board computer included in Kit
- MIPI CSI camera sensor plugs directly onto SBC5651 via CAMStack™ connector
- User configurable pinout adapts to a wide range of off-the-shelf CSI camera modules
- Stackable camera option available

OEM SBC5651 Features:

- ARM Cortex®-A8, 800 MHz
- NEON® GPU
- 512 MB SDRAM, 4GB Flash, 4MB SPI NOR Flash
- MIPI CSI-2 CMOS camera port, 10-bit parallel
- LCD Touchscreen
- One SD/MMC card slot
- CAN Bus Interface
- Three USB 2.0 ports
- Three serial ports (RS232 and RS485)
- 10/100 Ethernet
- Four power options: USB OTG, Li-Ion battery, Terminal Block, StackableUSB
- Pico-ITX Form Factor

DKV5651 Contents: SBC5651, MIPI CSI camera, sample software, display, power supply, cables, and breakout assemblies

Vision Integrated Development Platform:

The DKV5651 is a ready-to-run vision development platform for Micro/sys' SBC5651 ARM Cortex-A8 SBC using Linux. The kit enables users to implement video processing with off-the-shelf CSI camera sensor modules similar to those in today's cell phones. This development kit eliminates the need for spending hours (or maybe days or weeks) getting the individual components in a vision system to work together. Included in the DKV5651 kit is a SBC5651 single board computer, Linux BSP with operating system, integrated vision tools with sample software plus a CSI camera module. The DKV5651 ensures you will be programming a vision application within minutes of powering up your system.

CSI vs. USB: Who has the Advantage?

With the introduction of heterogeneous CPUs such as Freescale's iMX5 and iMX6, implementing vision applications using the processor rather than a USB I/O channel has becoming more appealing because the ARM Cortex, as a multi-core processors, already includes GPUs and MIPI camera interfaces.

Using USB cameras requires a lot of the system level CPU usage as USB is handled directly by the CPU. However, by using a CPUs CSI interface, the camera's video is routed to a GPU or other core for vision processing which relieves the system CPU by as much as 35%–yielding better system performance with more customizable features.

Inadequate software tools made working with a GPU and MIPI camera interfaces difficult in the past. Today these barriers have been overcome with more fully integrated Board Support Packages giving users access to the tools they need to write applications without difficult integration.

MICRO/SYS

Micro/sys 3730 Park Place Montrose, CA 91020 **P:** 818-244-4600 **E:** sales@embeddedsys.com www.embeddedsys.com

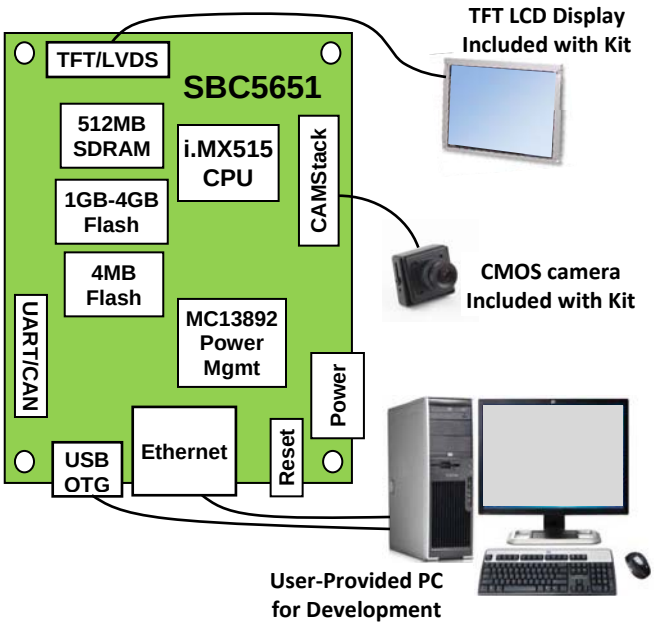
DKV5651

Linux BSP Eases System Development

The SBC5651 Development Kit ships with a Linux image pre-loaded on an SD card so programmers can write code and compile programs for their application directly on the SBC5651 itself.

To set up the system, simply attach a keyboard, display, and plug the SD card into the SBC5651 SD/MMC slot and the SBC5651 is up and running. An Ethernet cable can be attached to a desktop computer to access development tools on a personal desktop.

Step-by-step procedures to convert the Kernel and application program into a flash image for deployment of the user's final system out of flash are included in the User Manual.



Users who wish to build their own flavor of Linux for their embedded application will find Micro/sys releases for the CPU core with the Yocto Project. The Yocto Project is an open source community that offers templates, tools and methods to create custom Linux-based systems for embedded products. This powerful suite of cross-compilation and image generation tools allows for extreme flexibility in generating complete Linux system images for use in embedded applications. In addition, pre-compiled binary images—including some of the most commonly required libraries and tools—are available for download. Using the Yocto approach sets you up with a next generation environment of embedded Linux.

Vision Development Kit Includes:

Board & Hardware
- SBC5651 (Linux or WindowsCE)
- CMOS CSI camera module
- 7in TFT LCD display
- 5V wall-mount power supply
- 4 GB Solid State Drive (SSD)
- RJ45 Ethernet Cable
- Mini B to Type A USB 2.0 Cable
- (2) 20-pin high density to 20-pin screw terminal
- (2) 50-pin high density to 50-pin screw terminal

Board Support Package (BSP):
- U-Boot, kernel, Ubuntu, or GNOME Mobile
- Micro/sys Vision Layer

Targeted Reference Designs & Demos
- How to implement ARM Cortex
- How to implement drivers to DDR3 memory
- How to implement DIO and drivers

Documentation
- SBC5651 Getting Started Guide
- SBC5651 Hardware User Manual
- Yocto Whitepaper
- OpenCV Whitepaper
- Popular StackableUSB™ expansion bus

Ordering Information:

DKV5651 - ET - LINUX

SBC5651 DEVELOPMENT KIT
DK: Standard Development Kit
DKV: Vision Development Kit

OPERATING SYSTEM
LINUX: Linux
WINCE: WinCE

OPERATING TEMP
ET: Extended Temp
Blank: Commercial Temp

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