CES-EDU6410
Product Manual

ARM11 Teaching Platform

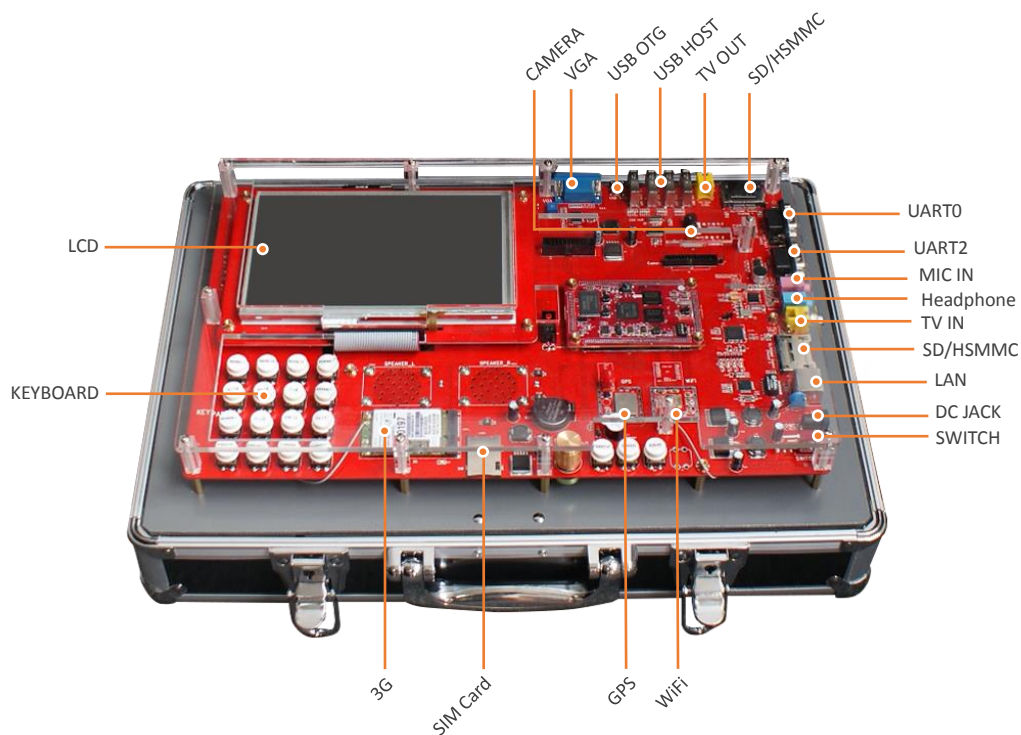Rev. V1.0

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Platform introduction

CES-EDU6410 teaching platform using the design of Samsung ARM1176JZF-S core CPU S3C6410 , combining with the development of a variety of mainstream products based on S3C6410 , including almost all of the features of NETBOOK, EPC, MID, PMP, SMARTPHONE, GPS Navigator. It is a powerful ARM teaching platform on the market currently.

The S3C6410 processor used by the CES-EDU6410 teaching platform is based on the core ARM1176JZF-S and contains 16KB instruction data cache and 16KB instruction data TCM. When the ARM Core voltage is 1.1V, it can run to 533MHz; at 1.2V, it can run to 667MHz. 64 / 32bit internal bus which is composed of AXI, AHB and APB connect to the external modules to support conventional power management, system peripherals, connecting bus and other functions. The biggest difference between this chip and the previous ones is that, in addition to the core, a powerful multimedia co-processor (Multimedia Acceleration) added in the peripheral functions. Support Mpeg4 / H.263 / H.264 encoding and decoding as well as VC1 decoding. Support for 2D, 3D, JPEG image processing, due to the excellent performance of S3C6410, you can easily complete the video, image processing. It has been widely used in a variety of high-end new products such as mobile network devices, 3D enhanced multimedia handsets, personal navigation devices which would display much more detailed images such as buildings and landmarks as well as the development of the next-generation handheld devices.

CES-EDU6410 teaching platform takes full account of product features, frequency at 667 / 800MHz, DDR SDRAM memory, up to 256Mbytes. WI-FI modules and GPS modules have been implemented on the board, especially for

the current popular 3G, the introduction of 3G modules for the establishment of 3G laboratories in colleges and universities. The teaching platform supports three popular operating systems : Linux 2.6.28, Android 2.1, Windows Embedded CE 6.0 R3. The complete board-level driver and experimental source for operating system are provided.

Functional interface

Hardware Parameters

CPU	Samsung S3C6410X , ARM1176JZF-S , frequency at 667MHz
Memory	Standard 256MB DDR SDRAM, optional 128MB ~ 512MB
FLASH	Standard 1GB SLC NAND FLASH, optional MLC NAND FLASH: 1G / 2G / 4G / 8 G
Core Board Power Su pply	Cost-effective Torex DC / DC power supply
Clock Circuit	Choose the active crystal and the passive crystal to combine the oscillating circ uit
Interface Circuit	With high-precision socket connected to the base board
LCD	Support 7-inch LCD touch screen, pixel 800 * 480

WiFi	Adopts the module WM-G-MR-09 of Taiwan USI and Marvell88W8686 chip, which is fully compatible with the international standards of IEEE802.11b / g, SDIO interface, 802.11g: 54,48,36,24,18,12,9, 6Mbps speed automatic adjustment
GPS	With SIRF Star III module, sensitivity: tracking -159Dbm capture -144Dbm
3G	WCDMA module EM770
Camera	Support 1.3 million pixel camera, OV9650
VGA	With super dedicated chip, designed for VGA, can be directly connected to a variety of VGA interface CRT monitor or LCD display, adjustable contrast
USB OTG	1*USB OTG
USB HOST	4*USB HOST
TV OUT	1*composite video signal output
TV IN	1 * analog video input, can receive a variety of different composite video input signal
Ethernet	1 *10M / 100M cable network port, using DM9000AE, with connection and transmission indicator
HSMMC Card	1 *high-speed MMC card interface
SD Card	1 *ordinary SD card interface
Audio	1 * AC97, WOLF's WM9713, stereo audio output, can be connected to headphones, speakers, support for recording
Amplifier Circuit	On board comes with 2 speakers, can play stereo
Serial	4*serial ports, the baud rate is 115200bps
RTC	Internal RTC
Keyboard	2 * 8 Scan keyboard
LED	A number of power and work lights
Reset	Using manual reset and chip reset combination of the chip MAX811, stable and reliable reset
Power	12V power supply , with power switch and indicator
Extension	External key interrupt、A/D conversion input、1*GPIO buzzer

Software Parameters——Android2.1

Operating system	Android 2.1
Kernel	Linux 2.6.29
System Boot Program	U-boot-1.1.6
Cross Compile Tool	Cross-4.2.2-eabi、4.3.1-eabi-armv6
File System Format	Ramdisk , YAFFS2
GUI	Android 2.1 , eclair
3G	Support SMS, Internet and other functions
WiFi	Support WiFi network communication
Camera	Support preview, camera, video function
GPS	Support SIF Ⅲ global positioning
LCD Display	Support 7-inch resistive touch screen driver
TOUCH Driver	Four-wire resistive touch screen driver
Audio Driver	Support audio function
LAN Driver	10M / 100M adaptive network interface driver
G3D Driver	Support OpenGL function
UART Driver	Serial communication
Keypad Driver	Support 2 * 8 scan button
VGA Driver	Support 1024 * 768 VGA display
USB OTGDriver	Support ADB and UMS functions
USB HOST Driver	Support U disk, USB mouse, USB keyboard
SD/MMC Driver	Support high-speed SD / MMC card
JPEG Driver	Support JPEG format pictures hardware decoding
MFC Driver	Support H.263 / H.264 / MPEG4 video hardware decoding
Operating System	Linux 2.6.28
Kernel	Linux 2.6.28
System Boot Program	U-boot-1.1.6
Cross Compile Tool	Cross-4.2.2-eabi
File System Format	YAFFS2

GUI	Qtopia1.7 & qt-everywhere 4.8.4
WiFi	Support 802.11b/g
AUDIO	Support recording, playback function
LAN	Support 10M / 100M adaptive network port driver
LED	Support four GPIO LED function control
LCD Display	Support 7-inch resistive touch LCD display
TOUCH Driver	Four-wire resistive touch driver, support for calibration
USB HOST Driver	Support mouse, keyboard, U disk and so on
Keypad Driver	Support 2 * 8 scan button
SD/MMC Driver	Support high-speed SD / MMC card
UART Driver	Support serial communication
RTC Driver	Support RTC
G3D Driver	Support OpenGLES function
MFC Driver	Support H.263 / H.264 / MPEG4 / VC-1 video hardware decoding
JPEG Driver	Support JPEG format pictures hardware decoding

Software Parameters——WinCE 6.0

Operating System	Windows Embedded CE 6.0 R3
Support Board Package	Windows Embedded CE 6.0 R3 BSP
WiFi	Support 802.11b/g
GPS	Support SIF III global positioning
LAN	10M / 100M adaptive network port driver, support for wired Internet
SD/MMC Driver	Support high-speed SD / MMC card
TV IN Driver	Support a variety of composite video input signals
TV OUT Driver	NTSC , PAL TV OUT (with image enhancement)
CAMERA Driver	Support OV9650 camera module
AUDIO Driver	Support AC97
LCD Display	7-inch resistive touch LCD display

TOUCH Driver	Four-wire resistive touch drive
UART Driver	4*UART
VGA Driver	Support resolutions 1024 * 768 and 800 * 600
USB HOST Driver	Support U disk and so on
Keypad Driver	Support 2 * 8 scan button drive
RTC Driver	Support RTC
MFC Driver	Multi-Format Codec (H.264/MPEG4/VC1)
JPEG Driver	JPEG CODEC
2D Driver	2D hardware acceleration
3D Driver	3D hardware acceleration

Product Configuration List

	User CD		Touch Pen
	Experimental Tutorial		Power Adapter
	Serial Line		USB to Serial Port
	Cable		3G module (Optional)
	USB Cable		Camera (Optional)
	USB Cable		SD card (Optional)

Service Support

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Disclaimer

This manual information is for reference only, and is subject to change without notice.

For more product information, please visit www.nrisc.com

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