Nvidia Tegra 250 Devlopment Kit

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Abstract- **NVIDIA Tegra is a system-on-a-chip series developed by NVIDIA for mobile devices such as smart phones, personal digital assistants and mobile internet devices. Nvidia, the inventor of the Graphics Processing unit (GPU) bring visual computing excellence to the embedded world. High performance meets low power with NVIDIA tegra processer get ready for HD video, crisp graphics and unprecedented 3D capabilities, all in one power efficient package. Each Tegra is a "computer on a chip" which integrates the ARM architecture processor CPU, GPU, north bridge, south bridge and memory controller onto a single package. The series emphasizes low power consumption and high performance for playing video and audio. The series is classified into three parts –APX series, 6xx series and 2xx series. The first product of 2xx series is TEGRA 250 .**

Keywords - Graphics processing unit, Acorn RISC Machine, Control processing unit,Crips graphics

I. INTRODUCTION

This chapter provides an introduction about the NVIDIA TEGRA 250processor.NVIDIA Tegra is a system-on-a-chip series developed by NVIDIA formobile devices such as smart phones, personal digital assistants and mobileinternet devices. Each Tegra is a "computer on a chip" which integrates the ARMarchitecture processor CPU, GPU, northbridge, southbridge and memorycontroller

onto a single package. The series emphasizes low power consumptionand high performance for playing video and audio. The series is classified intothree parts –APX series, 6xx series and 2xx series. The first product of 2xxseries is TEGRA 250 .It has the following specifications

- Processor: Dual-core ARM Cortex-A9 MPCore, up to 1 GHz
- Graphics: double 3D graphics performance of Tegra 600 series
- LP-DDR2 / DDR2
- 1080p H.264/VC-1/MPEG-4 Video Decode
- 1080p H.264 Video Encode
- JPEG encode and decode
- dual-display support
- camera support

Here, the initial setup of Nvidia Tegra 250 Development kit is focused. This is designed to assist a new user in understanding the hardware, selecting anoperating system to install to the devkit , and connect and configure the hardware to boot that operating system.

The developer kit contains almost all the necessary hardwares required to install the particular OS and boot it to make use .This kit is a compact smartbook-motherboard form factor computer-on-a-board with the following specifications

- Dual ARM Cortex A9 CPU @1GHz
- 1GB of RAM
- High-performance, shader-based 3D acceleration

- HD video encode and decode

- 512MB of Flash memory

- Onboard wired Ethernet

- WiFi

- Bluetooth

- Analog stereo audio in/out

- USB keyboard/mouse/storage support

- HDMI/DVI-D and VGA/CRT display support

- Onboard SD(HC) slot

OVERVIEW

In this chapter all the basic steps that are required to begin developing forthe Tegra 250 are explained .The basic steps like unboxing ,host pc configuration, connecting the devkit hardware and installing the operating system onto the developer's kit are explained.

There are a few basic steps required to begin developing for the devkit: 2.1 Unboxing:

- Unpack the devkit components

- Familiarize yourself with the components2.2 Host PC Configuration:

- Select the desired devkit operating system

- Collect the support pack for that operating system (eg. download itfrom the NVIDIA Tegra developers website)

- Read the documentation provided with that support pack and installit to the appropriate host PC

- Install any host PC support SW as required by the platform support

pack's documentation 2.3 Connecting the Devkit Hardware:

- Locate the required hardware accessories for the devkit (somewhat dependent upon the selected devkit operating system image)

- Select the desired video output based on your available displaydevices and the operating system.

Installing the Operating System to the Devkit:

- Follow the operating system image installation instructions provided with the support pack

- Boot the devkit

UNBOXING

This chapter deals with what to do after receiving the Tegra 250 hardware development kit. First developer kit contents and hardware requirements are explained then those item that are required to be used by the developer kit and that which are to be provided by the developers are explained.

Devkit Contents and Hardware Requirements

Initially, the developer kit contain the following items:

- Devkit main board (rectangular circuit board containing the Tegra chip and connectors for networking, USB peripherals, storage and display devices)

- 15V power adapter (USA 120V mains power connection)

- Adjustable, folding, threaded WiFi antenna

- Expansion board (smaller, square circuit board containing a serial port, LEDs and a few buttons)
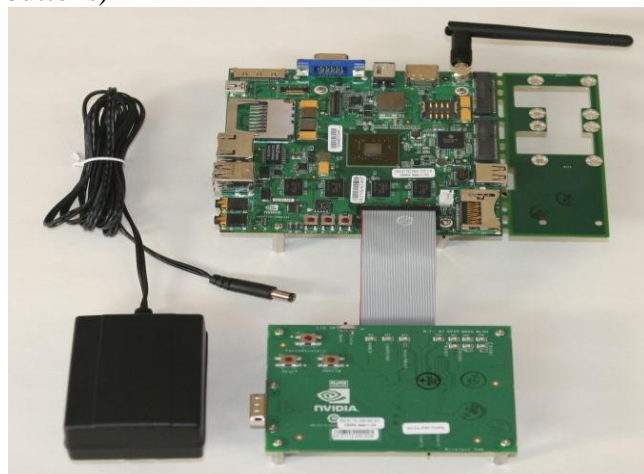
II. CONCLUSION

This chapter deals with the conclusions which arrived till now. The nvidia tegra 250 developers kit provides almost all necessary hardwares required to install that particular operating system onto the personal computer of the host and the proper booting of that operating system onto it .The items which are not provided in the developer kit is to be managed by the developer himself .He had to take decision which display he is going to use before starting the installation process. It is very easy and takes very less time to install the operating system onto the developers kit .All the steps required to be done are well documented in the nvidia tegra website.

It is the host personal computer operating system which determines which operating system are allowed to be installed onto it. Before installing any operating system on the developers kit, it should must be kept in the recovery mode . Meanwhile if there is any mistake in choosing the correct operating system, another operating system can be installed onto it but all the things are to be redone by the developer .Windows and linux on the host personal computer support windows and linux on the devkit respectively ,but if mac is going to be installed onto the developer kit , host pc can have any one of the two either windows or linux .

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