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Homework 1

Pick your *favorite mobile* computing system and answer the following questions:

(1) What are the generic and model names of the system?

- NVIDIA Shield Tablet

(2) What are the main components of the system?

- 8 inch 1920x1200 touch panel display
- High fidelity stereo speakers
- 802.11N Wifi
- Bluetooth 4.0 LE
- Front and back 5 Megapixel HDR cameras
- Optional wireless controller

(3) Functional requirements of the system?

- Play next-generation video games on a mobile platform
- Playback 1080p HD content (movies, tv, etc...)
- Allow PC streaming to tablet
- Browse internet through cellular provider or wi-fi connection

(4) Specifications

a. Processor

- ARM Cortex A15 quad core CPU at 2.2GHz, ARMv7-A architecture with stage pipeline, 32-bit design, 128-bit bus

b. Memory

- 2GB LDDR3 RAM

c. Input interfaces

- Micro-USB 2.0
- MicroSD storage
- 3.5mm stereo headphone jack

d. Output interfaces

- Mini-HDMI

e. Other components

- NVIDIA Tegra K1 192 core Kepler GPU
- 16 / 32 GB SSD
- 3-axis gyroscope
- 3-axis accelerometer
- 3-axis compass

-Micro-SIM card

(5) System properties

- a. Average power consumption
 - Battery rated for 19.75 watt hours
- b. Clock speed
 - 2.2GHz
- c. Form factor
 - 8 inch tablet
- d. Throughput
 - could not find MIPS rating for ARM A15 CPU
- e. Other properties
 - Android OS

(6) When was the product launched and by whom?

- Product launched by NVIDIA Corporation on July 29, 2014 in North America

(7) Provide the product family details

- 16GB 8 inch tablet
- 32GB 8 inch tablet

*both models have the same hardware/software specs except for storage space

(8) Is excessive power consumption an issue? If so, any low power features incorporated?

- Nvidia's Tegra K1 features a "battery saver" core and uses LDDR3 (low-power) RAM as found in most laptops/ultrabooks

(9) What makes this computer system, your favorite?

- Its plentiful feature-set combined with an attractive MSRP of \$299 for the 16GB model makes this tablet ideal for the occasional mobile gaming session

(10) Given an opportunity, describe what features you would redesign and why?

-If I were to redesign the Shield tablet I would update the display technology as it is rather lacking compared to most 8 inch mobile devices today. I would perhaps increase the resolution to 2560x1440p as the Kepler GPU has shown adequate performance at such resolution, also it would be beneficial to change from a TN panel to an IPS panel to cover almost 98% of the adobe RGB format

Resources:

www.shield.nvidia.com/gaming-tablet/

www.arm.com/products/processors/cortex-a/cortex-a15.php