Nvidia trumpets Tegra 3 phone design wins for 2012

May 27 2012, by Nancy Owano

(Phys.org) -- Nvidia's competitive war paint has a name, Tegra 3. On the heels of Nvidia announcements about lowering costs of its Tegra 3 processors and Nvidia-enabled tablets running Android Ice Cream Sandwich at $199, Nvidia this week made more Tegra 3 strategy headway, this time issuing announcements for smartphones. The company said that 30 smartphones based on its Tegra 3 system on a chip will be out this year. This is double the number of design wins on Tegra 2 last year.

Eighteen of the Tegra 3 smartphones are for China; Nvidia is aiming to move from high end to more mainstream products, and the numbers of phone SKUs based on Tegra 3 this year show an encouraging increase over 2011, according to the company.

Nvidia is aggressively building up its mobile processor business and investors have been told that Tegra 3 is driving that targeted growth. Tegra 3 has landed behind such devices as the HTC One X. (HTC's international edition without LTE capacities contained Tegra 3.) The LG Optimus 4X HD also carries the Nvidia Tegra 3 quad-core processor.

The focus on smartphones as well as tablets is said to stem from the company's Kai quad core reference design. Nvidia's appeal for manufacturers is promoted as an opportunity for them to leverage its technology so that cheap yet powerful phones can be introduced.

The Tegra 3 supports simultaneous active operations on Cortex A-9 processors, but relies on a fifth companion core to take over in phases of standby or low-usage. The phone saves power when the machine is in downtime and then can run demanding applications when needed. Most mobile devices are typically in active standby state for eighty percent of the time, and process intensive mobile applications twenty percent of the time.

Nvidia's Tegra 3 processor implements Variable Symmetric Multiprocessing (vSMP) technology, now known as "4-PLUS-1." The technology involves four main quad cores and includes a fifth battery-saver CPU core, built using a low-power process that executes tasks at low frequency. All five CPU cores are ARM Cortex A9 CPUs, individually enabled and disabled via power gating. The design also saves software efforts and new coding requirements.

As for pricing down the line, Nvidia says some phones will have a transfer price under $300. Other observers think some Tegra 3 phones will fall below the $200 price point.

AT&T will be carrying phones that run on Tegra 3. In a related Nvidia announcement on its smartphone headway, the company said that its

LTE modem, the Icera 410, has been certified for AT&T's LTE network. This is seen as significant as the lack of LTE support has been a hurdle for Tegra. The next-generation processor will accompany an Icera 500 modem.