print | close

Quad-Core Cortex-A53 Supports Fanless vCPE Applications

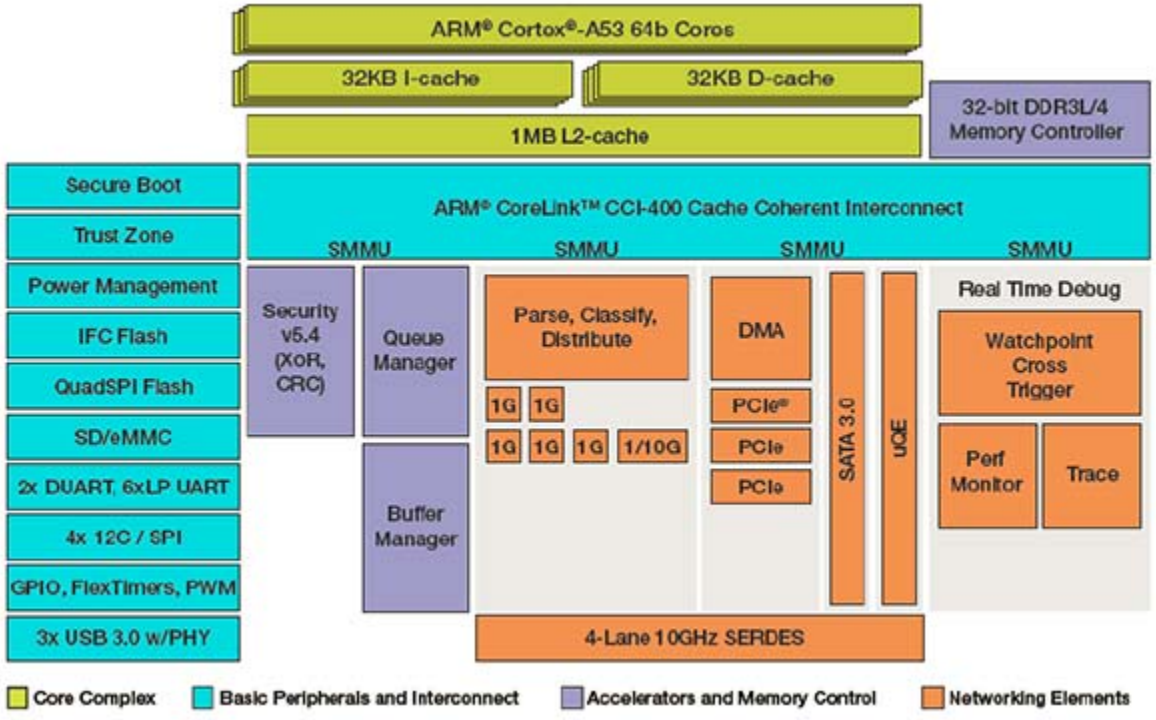
Electronic Design

William Wong

Fri, 2014-11-14 14:25

Freescale's QorIQ LS1043A , which will set its sights on virtual customer premises equipment (vCPE) applications, has low-power requirements that allow for fanless operation. This system-on-chip (SoC) is built around four, 64-bit ARM Cortex-A53 cores *(see the figure)*. It will ultimately bring network function virtualization (NFV) to the edge of the network.

The low-power chips use as little as 6 W while handling network throughput at speeds in excess of 10 Gbits/s. The chip can deliver 2600 CoreMarks/W, making them ideal for providing virtualization support for routers, industrial PLC and security applications. Platforms based on the LS1043A can reduce operating expenses (opex) by simplifying advanced and latency sensitive applications such as application ID, QoS and security.



The internal CCI-400 switch fabric connects the four primary cores with a 32-bit DDR3L/4 memory controller and network hardware processors to accelerate cryto chores and L2/L3 classification as well tunnel header offload, packet reassembly and traffic management.

The QUICC Engine allows asynchronous processing of protocols such as PROFIBUS, HDLC and TDM. The system supports 10G, 2.5G and 1G Ethernet connections.

Additional peripheral support includes PCI Express Gen 2 interfaces as well as USB 3.0, SATA 3, and Quad SPI

SPI). Wireless support allows 802.11ac modules for high bandwidth connectivity. The USB 3.0 incorporates Ys on-chip.

Freescale included ARM's TrustZone support. Secure boot allows end-to-end security. The hardware acceleration allows VPN/IPsec rates up to 5 Gbits/s.

The ARM-based QorIQ families now range from the Cortex-A9 versions for the low end of the spectrum up to this latest LS1 solution with the Cortex-A53 cores. It is supported by a range of third party tools as well as Freesscale's own tool suite with Linux support. These platforms will allow the latest SDN/NFV configurations to be place at remote sites with minimum support requirements.

Source URL: http://electronicdesign.com/embedded/quad-core-cortex-a53-supports-fanless-vcpe-applications