nP3705

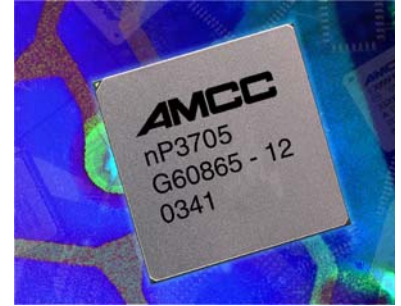## 2.5-Gbps Network Processor with Integrated Traffic Manager

Benefits

- High integration for Significant form factor, cost, and power savings
- Hardware-based Traffic Manager for guaranteed performance
- Software compatibility with previous generation nP devices: nP37x0, nP34xx, nP7250
- Simple programming model for rapid development and quick time-to-market

Overview

The nP3705 family of integrated network processors is a derivative of the nP3700 family that expands AMCC's nP^{5TM} technology to lower speed, cost-sensitive access applications.

Developed over several generations of traffic management and network processor products, nP^5 unites the flexibility of the industry's highest performance network processing nPcore with the most widely deployed and mature traffic management technology. This unique combination enables developers to deliver extremely fine-grained control of subscriber traffic, without impacting the ability to perform complex protocol inter-working at media speeds. The nP3705 family is designed from the ground up to provide software compatibility with the earlier generations of AMCC Network Processors. The single-stage programming model dramatically simplifies software development and troubleshooting for quickest time-to-market.

Industry Leading Integration and Performance

The nP3705 is a 2.5-Gbps network processing and traffic management solution. In addition to high-performance packet processing and fine-grained traffic management, the nP3705 includes specialized coprocessors that perform classification, policing, and coherent database management for unparalleled line-rate performance. The devices are offered in different speed grades to provide a range of performance and cost options tuned to the application.

Rapid Application Development

AMCC's nPsoft^{TM} development environment speeds the development, debugging, and delivery

of feature-rich, wire-speed, Layer 2-7 applications by combining the simplified nPcoreTM programming model of all AMCC NPUs with open, layered nPsoft Services, advanced development tools, rich reference application libraries, and both simulation and real hardware-based development systems. Because the nP3705 allows easy API access to on-chip coprocessors for complex tasks, customer differentiating features can be created faster and with fewer lines of code.

Features

Supports 2.5-Gbps Traffic

- nP^5 Technology
- Mix and match Gigabit Ethernet, POS, and ATM traffic
- Standalone or as a line card in a larger system

Proven nPcore Architecture

- 1 nPcore at 700 MHz optimized for network processing
- Single-stage single-image programming model
- High-speed RLDRAM-II or FCRAM-II memory interface for payload and context storage
- Per-flow metering and statistics for millions of flows

Integrated Traffic Manager

- Per-flow queuing and scheduling
- Sophisticated, fine-grained scheduling algorithms

Standards-Compliant Interfaces

- 14 FE/2 GE with Integrated MAC
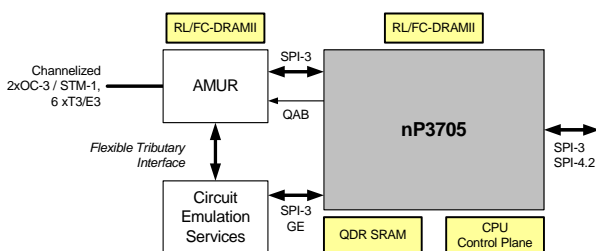- OIF SPI-3, OIF SPI-4.2 (1/4 rate)
- ATM Forum Utopia 2 / PL-2

Figure 1. Channelized 2xOC-3/STM-1 Multi-Service Line Card with CES
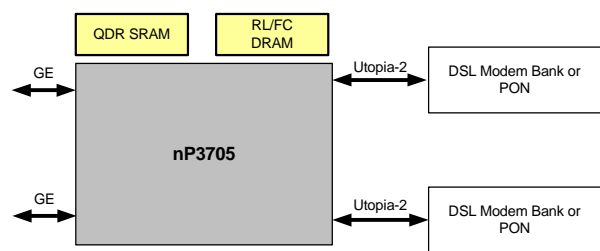

Figure 2. 2.5Gb/s Broadband Access Line Card

nP3705

Applications

- OC-12/STM-4 ASAP applications ATM, IMA, FR, PPP, ML-FR/PPP
- Up to 2.5Gbs line cards in access systems - DSLAM, FTTx
- OC-12 SAR, ATM to Packet IWF
- L3-L7 Applications

MISSION^TM — Multi-Service Internetworking Solution

The nP3705, combined with AMCC's Amur (S1215) channelized framer and ATM/HDLC/GFP processor extend AMCC's MISSION multi-service offering to applications up to OC-12/STM-4 rates. This solution enables the development of single multiprotocol solutions in place of multiple single-protocol solutions. The MISSION architecture provides equipment vendors with solutions that enable their customers to save on both capital and operational expenditures (CapEx/OpEx).

MISSION Software

At the core of the MISSION value proposition is software that implements a wide variety of protocols on the chip set and enables flexible potential additions to these base software features. AMCC provides extensive offerings for the programmable nP37xx Integrated Network Processors, including both rich off-the-shelf application software and a complete development environment for extending this application base if desired.

- The MISSION application software includes ready-to-use Multi-Service Switching software – ATM UNI/NNI, Inverse Multiplexing over ATM (IMA), Multi-Link Frame Relay (ML-FR), Multi-Link PPP (ML-PPP), Frame Relay and FR to ATM Interworking (FR IWF), MPLS Martini encapsulation – as well as OEM customer-extensible libraries for the hardware-resident aspects of higher layer applications such as IPv4 and IPv6 routing, and Layer 2 packet switching.
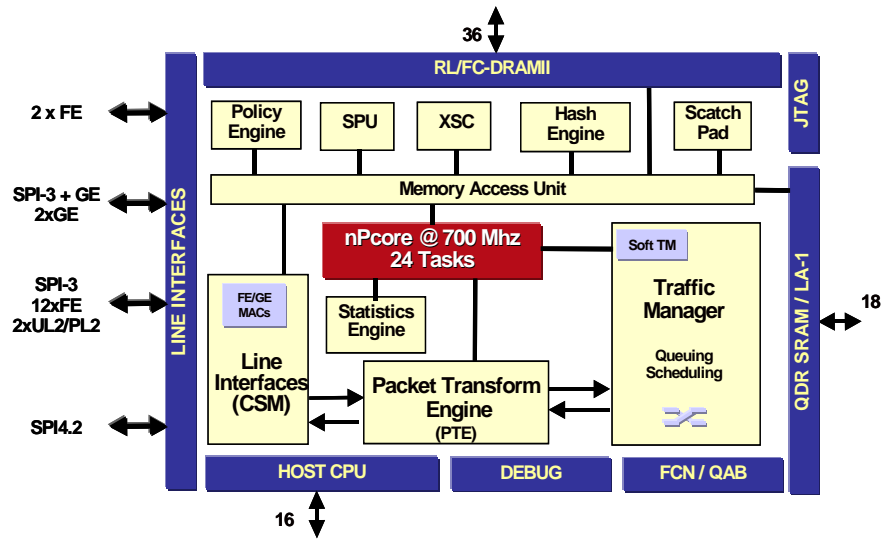

Figure 3. nP3705 Block Diagram

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